

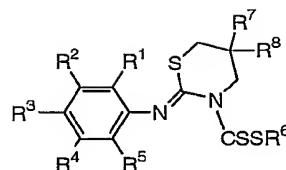
表 4 1

| 化 合 物 番 号 | 物 性 | |
|--------------------------|-----|---|
| | No | 融点 |
| NMR (CDCl ₃) | | |
| I-271 | | 1.04 (3H, s), 1.08 (3H, s), 1.29 (6H, d), J=6.9), 2.69(2H, s), 3.40 (1H, sept, J=6.9), 3.43 (3H, s), 3.51 (2H, s), 7.18-7.29 (2H, m), 7.36-7.45 (2H, m) |
| I-272 | | 0.96 (3H, s), 1.05 (3H, s), 1.25 (3H, d, J=6.9), 1.26 (3H, d, J=6.9), 2.61 (1H, d, J=12), 2.70 (1H, d, J=12), 3.39 (1H, sept, J=6.9), 3.45-3.58 (2H, m), 7.02-7.07 (2H, m), 7.11-7.18 (1H, m), 7.38-7.45 (2H, m), 7.61-7.70 (2H, m) |
| I-273 | | 0.84 (3H, s), 1.00 (3H, s), 1.25 (3H, d, J=6.9), 1.29 (3H, J=6.9), 2.43 (3H, s), 2.53 (1H, d, J=12), 2.64 (1H, d, J=12), 3.29 (1H, d, J=16), 3.42 (1H, d, J=16), 3.47 (1H, sept, J=6.9), 7.09-7.19 (2H, m), 7.24-7.29 (2H, m), 7.38-7.45 (2H, m), 7.81-7.86 (2H, m) |
| I-274 | | 0.99 (6H, s), 1.19 (6H, d, J=6.9), 2.40 (3H, s), 2.67 (2H, s), 2.87 (1H, sept, J=6.9), 3.43 (2H, s), 7.11-7.29 (6H, m), 7.68 (2H, d, J=8.1) |
| I-275 | | 1.07 (6H, s), 1.26 (6H, d, J=6.9), 1.38 (3H, t, J=7.2), 2.71 (2H, s), 2.93 (1H, sept, J=6.9), 3.51 (2H, s), 3.60 (2H, q, J=7.2), 7.20-7.30 (4H, m) |
| I-276 | | 1.19 (6H, s), 1.23 (6H, d, J=6.9), 2.77 (2H, s), 2.87 (1H, sept, J=6.9), 3.58 (2H, s), 6.65-6.69 (2H, m), 6.91 (1H, d, J=7.5), 7.20 (1H, t, J=7.5), 7.51 (2H, d, J=9.3), 8.22 (2H, d, J=9.3) |
| I-277 | | 0.99 (6H, s), 1.20 (6H, d, J=6.9), 2.67 (2H, s), 2.88 (1H, sept, J=6.9), 3.44 (2H, s), 3.85 (3H, s), 6.86-6.90 (2H, m), 7.11-7.26 (4H, m), 7.72-7.76 (2H, m) |

表 4 2

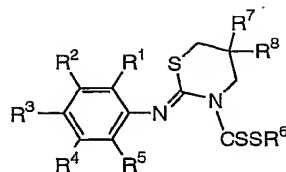
| 化 合 物 番 号 | 物 性 | |
|-----------|-----|--|
| No | 融点 | NMR (CDCl ₃) |
| I-278 | | 1.03 (6H, s), 1.20 (6H, d, J=6.9), 2.70 (2H, s), 2.88 (1H, sept, J=6.9), 3.44 (2H, s), 7.08-7.31 (4H, m), 7.60 (1H, t, J=8.4), 8.04 (1H, d, J=8.4), 8.39 (d, J=8.4), 8.74 (1H, s) |
| I-279 | | 1.01 (6H, s), 1.19 (6H, d, J=6.9), 2.69 (2H, s), 2.88 (1H, sept, J=6.9), 3.42 (2H, s), 7.09-7.32 (4H, m), 7.68 (2H, d, J=8.4), 7.92 (2H, d, J=8.4), |
| I-280 | | 1.19 (3H, s), 1.21 (3H, s), 1.23-1.30 (6H, m), 2.62 (1H, d, J=12), 2.82 (1H, sept, J=6.9), 3.02 (1H, d, J=12), 3.46-3.70 (2H, m), 6.53-6.60 (2H, m), 6.86 (1H, d, J=7.8), 7.13 (1H, t, J=7.8), 7.28-7.40 (2H, m), 7.61-7.66 (1H, m), 7.90 (1H, dd, J=7.5, 1.2) |

表 4 3



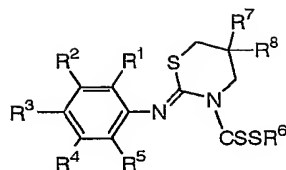
| No | R ¹ | R ² | R ³ | R ⁴ | R ⁵ | R ⁶ | R ⁷ | R ⁸ |
|-------|-----------------|----------------|----------------|----------------|----------------|---|----------------|----------------|
| II-1 | Pr ⁱ | H | H | H | H | Allyl | Me | Me |
| II-2 | Pr ⁱ | H | H | H | H | Propargyl | Me | Me |
| II-3 | Pr ⁱ | H | H | H | H | CH ₂ CN | Me | Me |
| II-4 | Pr ⁱ | H | H | H | H | CH ₂ OMe | Me | Me |
| II-5 | Pr ⁱ | H | H | H | H | CH ₂ CH=CHMe | Me | Me |
| II-6 | Pr ⁱ | H | H | H | H | CH ₂ CH=CMe ₂ | Me | Me |
| II-7 | Pr ⁱ | H | H | H | H | CH ₂ CH ₂ CH=CH ₂ | Me | Me |
| II-8 | Pr ⁱ | H | H | H | H | CH ₂ COMe | Me | Me |
| II-9 | Pr ⁱ | H | H | H | H | CH ₂ CO ₂ H | Me | Me |
| II-10 | Pr ⁱ | H | H | H | H | CH ₂ CO ₂ Me | Me | Me |
| II-11 | Pr ⁱ | H | H | H | H | CH ₂ CO ₂ Et | Me | Me |
| II-12 | Pr ⁱ | H | H | H | H | CH ₂ CO ₂ Pr | Me | Me |
| II-13 | Pr ⁱ | H | H | H | H | CH ₂ CO ₂ Pr ⁱ | Me | Me |
| II-14 | Pr ⁱ | H | H | H | H | CH ₂ CO ₂ Bu ^t | Me | Me |
| II-15 | Pr ⁱ | H | H | H | H | CH ₂ CO ₂ CH=CH ₂ | Me | Me |
| II-16 | Pr ⁱ | H | H | H | H | CH ₂ CO ₂ CH ₂ CH=CH ₂ | Me | Me |
| II-17 | Pr ⁱ | H | H | H | H | CH ₂ CO ₂ (CH ₂) ₂ OMe | Me | Me |
| II-18 | Pr ⁱ | H | H | H | H | CH(Me)CO ₂ Me | Me | Me |
| II-19 | Pr ⁱ | H | H | H | H | C(Me) ₂ CO ₂ Et | Me | Me |
| II-20 | Pr ⁱ | H | H | H | H | CH ₂ CONH ₂ | Me | Me |
| II-21 | Pr ⁱ | H | H | H | H | CH ₂ CONMe ₂ | Me | Me |
| II-22 | Pr ⁱ | H | H | H | H | CH ₂ CON(Me)OMe | Me | Me |
| II-23 | Pr ⁱ | H | H | H | H | CH ₂ CF ₃ | Me | Me |
| II-24 | Pr ⁱ | H | H | H | H | CH ₂ CH ₂ OCOMe | Me | Me |
| II-25 | Pr ⁱ | H | H | H | H | CH ₂ CH ₂ OPh | Me | Me |

表 4 4



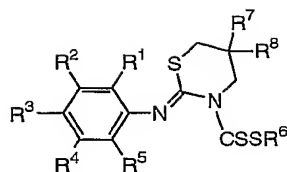
| No | R ¹ | R ² | R ³ | R ⁴ | R ⁵ | R ⁶ | R ⁷ | R ⁸ |
|-------|-----------------|----------------|----------------|----------------|----------------|---|----------------|----------------|
| II-26 | Pr ⁱ | H | H | H | H | CH ₂ CH ₂ OCH=CH ₂ | Me | Me |
| II-27 | Pr ⁱ | H | H | H | H | | Me | Me |
| II-28 | Pr ⁱ | H | H | H | H | | Me | Me |
| II-29 | Pr ⁱ | H | H | H | H | | Me | Me |
| II-30 | Pr ⁱ | H | H | H | H | | Me | Me |
| II-31 | Pr ⁱ | H | H | H | H | | Me | Me |
| II-32 | Pr ⁱ | H | H | H | H | | Me | Me |
| II-33 | Pr ⁱ | H | H | H | H | | Me | Me |
| II-34 | Pr ⁱ | H | H | H | H | | Me | Me |
| II-35 | Pr ⁱ | H | H | H | H | | Me | Me |
| II-36 | Pr ⁱ | H | H | H | H | | Me | Me |
| II-37 | Pr ⁱ | H | H | H | H | | Me | Me |
| II-38 | Pr ⁱ | H | H | H | H | | Me | Me |
| II-39 | Pr ⁱ | H | H | H | H | Allyl | Et | Et |
| II-40 | Pr ⁱ | H | H | H | H | CH ₂ CO ₂ Et | Et | Et |
| II-41 | Pr ⁱ | H | H | H | H | CH ₂ CO ₂ Pr ⁱ | Et | Et |
| II-42 | Pr ⁱ | H | H | H | H | CH ₂ CO ₂ Bu ^t | Et | Et |
| II-43 | Pr ⁱ | H | H | H | H | CH ₂ CH ₂ CO ₂ Et | Et | Et |

表 4 5



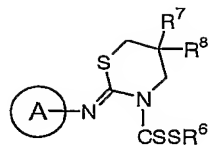
| No | R ¹ | R ² | R ³ | R ⁴ | R ⁵ | R ⁶ | R ⁷ | R ⁸ |
|-------|------------------|------------------|----------------|----------------|----------------|--|----------------|----------------|
| II-44 | Pr ⁱ | H | H | H | H | CH ₂ CH=CHMe | Et | Et |
| II-45 | Pr ⁱ | H | H | H | H | CH ₂ CH=CMe ₂ | Et | Et |
| II-46 | Pr ⁱ | H | H | H | H | CH ₂ CH ₂ CH=CH ₂ | Et | Et |
| II-47 | Bu ^s | H | H | H | H | CH ₂ CO ₂ Et | Me | Me |
| II-48 | Bu ^s | H | H | H | H | CH ₂ CO ₂ Bu ^t | Me | Me |
| II-49 | Bu ^s | H | H | H | H | Allyl | Et | Et |
| II-50 | Bu ^s | H | H | H | H | CH ₂ CH ₂ OCOMe | Et | Et |
| II-51 | Bu ^s | H | H | H | H | -CH ₂ CH ₂ -N ₂ O | Et | Et |
| II-52 | H | H | Et | H | H | CH ₂ CO ₂ Et | Me | Me |
| II-53 | H | Pr ⁱ | H | H | H | CH ₂ CO ₂ Et | Me | Me |
| II-54 | NMe ₂ | H | H | H | H | CH ₂ CO ₂ Et | Me | Me |
| II-55 | H | NMe ₂ | H | H | H | CH ₂ CO ₂ Et | Me | Me |
| II-56 | H | NEt ₂ | H | H | H | CH ₂ CO ₂ Et | Me | Me |
| II-57 | H | H | Et | H | H | CH ₂ CO ₂ Bu ^t | Me | Me |
| II-58 | H | Pr ⁱ | H | H | H | CH ₂ CO ₂ Bu ^t | Me | Me |
| II-59 | NMe ₂ | H | H | H | H | CH ₂ CO ₂ Bu ^t | Me | Me |
| II-60 | H | NMe ₂ | H | H | H | CH ₂ CO ₂ Bu ^t | Me | Me |
| II-61 | H | NEt ₂ | H | H | H | CH ₂ CO ₂ Bu ^t | Me | Me |
| II-62 | H | NEt ₂ | H | H | H | Allyl | Me | Me |
| II-63 | Me | NEt ₂ | H | H | H | Allyl | Me | Me |
| II-64 | Me | NMe ₂ | H | H | H | Allyl | Me | Me |
| II-65 | NMe ₂ | H | H | H | H | Allyl | Et | Et |
| II-66 | NMe ₂ | H | H | H | H | CH ₂ CO ₂ Bu ^t | Et | Et |
| II-67 | OMe | H | H | H | H | Allyl | Et | Et |
| II-68 | OMe | H | H | H | H | CH ₂ CO ₂ Bu ^t | Et | Et |
| II-69 | H | H | Et | H | H | Allyl | Et | Et |
| II-70 | H | H | Et | H | H | CH ₂ CO ₂ Bu ^t | Et | Et |

表 4 6



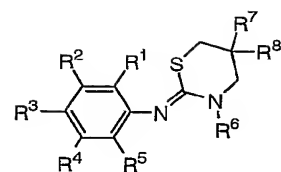
| No | R ¹ | R ² | R ³ | R ⁴ | R ⁵ | R ⁶ | R ⁷ | R ⁸ |
|-------|------------------|----------------|------------------|----------------|----------------|---|---|----------------|
| II-71 | H | H | OCF ₃ | H | H | Allyl | Et | Et |
| II-72 | H | H | OCF ₃ | H | H | CH ₂ CO ₂ Bu ^t | Et | Et |
| II-73 | NMe ₂ | H | H | H | H | CH ₂ OMe | Et | Et |
| II-74 | Pr ⁱ | H | H | H | H | Allyl | -(CH ₂) ₄ - | |
| II-75 | NMe ₂ | H | H | H | H | Allyl | -(CH ₂) ₄ - | |
| II-76 | NMe ₂ | H | H | H | H | CH ₂ CO ₂ Bu ^t | -(CH ₂) ₄ - | |
| II-77 | Pr ⁱ | H | H | H | H | CH ₂ CO ₂ (CH ₂) ₂ OMe | -(CH ₂) ₄ - | |
| II-78 | Pr ⁱ | H | H | H | H | | -(CH ₂) ₄ - | |
| II-79 | OMe | H | H | H | H | Allyl | -(CH ₂) ₄ - | |
| II-80 | OMe | H | H | H | H | CH ₂ CO ₂ Bu ^t | -(CH ₂) ₄ - | |
| II-81 | NMe ₂ | H | H | H | H | CH ₂ OMe | -(CH ₂) ₄ - | |
| II-82 | H | H | Et | H | H | Allyl | -(CH ₂) ₄ - | |
| II-83 | H | H | OCF ₃ | H | H | Allyl | -(CH ₂) ₄ - | |
| II-84 | NMe ₂ | H | H | H | H | Allyl | -(CH ₂) ₅ - | |
| II-85 | NMe ₂ | H | H | H | H | CH ₂ CO ₂ Bu ^t | -(CH ₂) ₅ - | |
| II-86 | OMe | H | H | H | H | Allyl | -(CH ₂) ₅ - | |
| II-87 | OMe | H | H | H | H | CH ₂ CO ₂ Bu ^t | -(CH ₂) ₅ - | |
| II-88 | H | H | Et | H | H | Allyl | -(CH ₂) ₅ - | |
| II-89 | Pr ⁱ | H | H | H | H | | -(CH ₂) ₅ - | |
| II-90 | Pr ⁱ | H | H | H | H | CH ₂ CH ₂ OH | -(CH ₂) ₅ - | |
| II-91 | H | H | OCF ₃ | H | H | Allyl | -(CH ₂) ₅ - | |
| II-92 | Pr ⁱ | H | H | H | H | Allyl | -(CH ₂) ₂ O(CH ₂) ₂ - | |
| II-93 | Pr ⁱ | H | H | H | H | Me | -(CH ₂) ₂ O(CH ₂) ₂ - | |
| II-94 | Pr ⁱ | H | H | H | H | CH ₂ CO ₂ H | Et | Et |

表 4 7



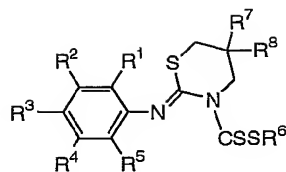
| | A | R ⁶ | R ⁷ | R ⁸ |
|--------|---|---|------------------------------------|----------------|
| II-95 | | Allyl | Me | Me |
| II-96 | | CH ₂ CO ₂ Bu ^t | Me | Me |
| II-97 | | CH ₂ CO ₂ (CH ₂) ₂ OMe | Me | Me |
| II-98 | | Allyl | Et | Et |
| II-99 | | CH ₂ CO ₂ Bu ^t | Et | Et |
| II-100 | | Allyl | Et | Et |
| II-101 | | Allyl | -(CH ₂) ₄ - | |
| II-102 | | CH ₂ CO ₂ Bu ^t | -(CH ₂) ₄ - | |
| II-103 | | Allyl | -(CH ₂) ₄ - | |
| II-104 | | Allyl | -(CH ₂) ₅ - | |
| II-105 | | Allyl | -(CH ₂) ₅ - | |

表 4 8



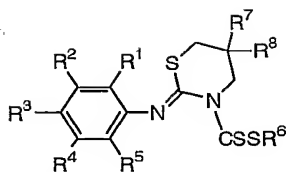
| | R ¹ | R ² | R ³ | R ⁴ | R ⁵ | R ⁶ | R ⁷ | R ⁸ |
|--------|-----------------|----------------|----------------|----------------|----------------|----------------|---|----------------|
| II-106 | Pr ⁱ | H | H | H | H | | Me | Me |
| II-107 | Pr ⁱ | H | H | H | H | | Me | Me |
| II-108 | Pr ⁱ | H | H | H | H | | Me | Me |
| II-109 | Pr ⁱ | H | H | H | H | | Me | Me |
| II-110 | H | H | Pr | H | H | | Me | Me |
| II-111 | Pr ⁱ | H | H | H | H | | Et | Et |
| II-112 | Pr ⁱ | H | H | H | H | | Me | Me |
| II-113 | Pr ⁱ | H | H | H | H | CSSMe | -(CH ₂) ₂ N(CH ₂ Ph)(CH ₂) ₂ - | |

表 4 9



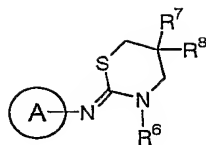
| | R ¹ | R ² | R ³ | R ⁴ | R ⁵ | R ⁶ | R ⁷ | R ⁸ |
|--------|-----------------|------------------|--|----------------|----------------|---|---|----------------|
| II-114 | H | SMe | H | H | H | Allyl | Et | Et |
| II-115 | H | SMe | H | H | H | Allyl | -(CH ₂) ₄ - | |
| II-116 | H | SMe | H | H | H | Allyl | -(CH ₂) ₅ - | |
| II-117 | H | H | SMe | H | H | Allyl | -(CH ₂) ₄ - | |
| II-118 | H | H | SMe | H | H | Allyl | -(CH ₂) ₅ - | |
| II-119 | OMe | H | Et | H | H | Allyl | Me | Me |
| II-120 | OMe | H | Pr ⁱ | H | H | Allyl | Me | Me |
| II-121 | Pr ⁱ | H | OMe | H | H | Allyl | Me | Me |
| II-122 | Pr ⁱ | H | OEt | H | H | Allyl | Me | Me |
| II-123 | H | OEt | OEt | H | H | Allyl | Me | Me |
| II-124 | H | OPr | OPr | H | H | Allyl | Me | Me |
| II-125 | H | OMs | OEt | H | H | Allyl | Me | Me |
| II-126 | H | H | (CH ₂) ₂ OEt | H | H | Allyl | Me | Me |
| II-127 | H | OMe | OEt | H | H | Allyl | Et | Et |
| II-128 | H | OEt | OEt | H | H | Allyl | Et | Et |
| II-129 | H | OEt | OPr | H | H | Allyl | Et | Et |
| II-130 | H | OMs | OPr | H | H | Allyl | Et | Et |
| II-131 | H | OPr | OPr | H | H | Allyl | Et | Et |
| II-132 | H | OPr ⁱ | OPr | H | H | Allyl | Et | Et |
| II-133 | H | H | (CH ₂) ₂ NMe ₂ | H | H | Allyl | Me | Me |
| II-134 | Pr ⁱ | H | H | H | H | CH ₂ CO ₂ B u ^t | -(CH ₂) ₅ - | |
| II-135 | Pr ⁱ | H | H | H | H | Me | -(CH ₂) ₂ N(Me)(CH ₂) ₂ - | |
| II-136 | Pr ⁱ | H | H | H | H | Me | -(CH ₂) ₂ N(Et)(CH ₂) ₂ - | |
| II-137 | F | H | F | H | H | Allyl | Me | Me |
| II-138 | H | Cl | Cl | H | H | Allyl | Me | Me |
| II-139 | Me | H | Cl | H | H | Allyl | Me | Me |
| II-140 | Cl | H | Me | H | H | Allyl | Me | Me |
| II-141 | H | H | (CH ₂) ₂ OMe | H | H | Allyl | Me | Me |
| II-142 | H | H | Pr ⁱ | H | H | Allyl | -(CH ₂) ₄ - | |
| II-143 | H | H | Pr ⁱ | H | H | CH ₂ CO ₂ B u ^t | -(CH ₂) ₄ - | |

表 5 0



| | R ¹ | R ² | R ³ | R ⁴ | R ⁵ | R ⁶ | R ⁷ | R ⁸ |
|--------|-----------------|----------------|-----------------|----------------|----------------|---|---|-----------------|
| II-144 | H | H | Pr ⁱ | H | H | Allyl | Et | Et |
| II-145 | H | H | Pr ⁱ | H | H | CH ₂ CO ₂ B u ^t | Et | Et |
| II-146 | H | H | Pr ⁱ | H | H | Allyl | -(CH ₂) ₅ - | |
| II-147 | OMe | H | H | H | H | CH ₂ CO ₂ B u ^t | Pr | Pr |
| II-148 | OMe | H | H | H | H | CH ₂ CO ₂ B u ^t | Pr ⁱ | Pr ⁱ |
| II-149 | OMe | H | H | H | H | Allyl | Pr | Pr |
| II-150 | Bu ^s | H | H | H | H | Me | -(CH ₂) ₂ N(Me)(CH ₂) ₂ - | |

表 5 1



| | A | R ⁶ | R ⁷ | R ⁸ |
|--------|---|--|---|----------------|
| II-151 | | CSSCH ₂ CO ₂ Bu ^t | -(CH ₂) ₅ - | |
| II-152 | | CSSCH ₂ CO ₂ Bu ^t | Et | Et |
| II-153 | | COSMe | -(CH ₂) ₂ N(Me)(CH ₂) ₂ - | |
| II-154 | | COSMe | -(CH ₂) ₂ N(Me)(CH ₂) ₂ - | |

表 5 2

| 化合物番号 | 物性 | |
|-------|-----------|--|
| No | 融点 | NMR (CDCl ₃) |
| II-1 | | 1.20 (6H, d, J=6.9), 1.23 (6H, s), 2.66 (2H, s), 3.09 (1H, sept, J=6.9), 3.93-3.97 (2H, m), 4.49 (2H, s), 5.15-5.19 (1H, m), 5.28-5.39 (1H, m), 5.86-6.01 (1H, m), 6.89-6.94 (1H, m), 7.11-7.21 (2H, m), 7.29-7.34 (1H, m) |
| II-2 | 93.5-94.5 | 1.21 (6H, d, J=6.9), 1.23 (6H, s), 2.20 (1H, t, J=2.6), 2.69 (2H, s), 3.09 (1H, sept, J=6.9), 3.99 (2H, d, J=2.6), 4.49 (2H, s), 6.90-6.94 (1H, m), 7.14-7.22 (2H, m), 7.32-7.35 (1H, m) |
| II-3 | | 1.21 (6H, d, J=6.9), 1.25 (6H, s), 2.74 (2H, s), 3.02 (1H, sept, J=6.9), 4.00 (2H, s), 4.50 (2H, s), 6.87-6.90 (1H, m), 7.15-7.22 (2H, m), 7.32-7.36 (1H, m) |
| II-4 | 73-74 | 1.21 (6H, d, J=6.9), 1.24 (6H, s), 2.67 (2H, s), 3.10 (1H, sept, J=6.9), 3.44 (3H, s), 4.48 (2H, s), 5.45 (2H, s), 6.92-6.96 (1H, m), 7.16-7.20 (2H, m), 7.32-7.35 (1H, m) |
| II-5 | | 1.19 (6H, d, J=6.9), 1.22 (6H, s), 1.71 (3H, d, J=6.6), 2.64 (2H, s), 3.15 (1H, sept, J=6.9), 3.88 (2H, d, J=6.9), 4.49 (2H, s), 5.56-5.62 (1H, m), 5.69-5.78 (1H, m), 6.89-6.94 (1H, m), 7.11-7.21 (2H, m), 7.29-7.34 (1H, m) |
| II-6 | | 1.19 (6H, d, J=6.9), 1.23 (6H, s), 1.72 (3H, d, J=6.9), 2.65 (2H, s), 3.15 (1H, sept, J=6.9), 3.89 (2H, d, J=6.9), 4.49 (2H, s), 5.28-5.35 (1H, m), 6.87-6.92 (1H, m), 7.11-7.21 (2H, m), 7.29-7.34 (1H, m) |
| II-7 | | 1.19 (6H, d, J=6.9), 1.23 (6H, s), 2.47 (2H, q, J=7.4), 2.64 (2H, s), 3.15 (1H, sept, J=6.9), 3.34 (2H, t, J=7.4), 4.48 (2H, s), 5.01-5.14 (2H, m), 5.74-5.98 (1H, m), 6.82-6.89 (1H, m), 7.11-7.21 (2H, m), 7.29-7.34 (1H, m) |
| II-8 | 92-96 | 1.20 (6H, d, J=6.9), 1.22 (6H, s), 2.35 (3H, s), 2.70 (2H, s), 3.08 (1H, sept, J=6.9), 4.12 (2H, s), 4.46 (2H, s), 6.92-6.97 (1H, m), 7.11-7.22 (2H, m), 7.30-7.35 (1H, m) |
| II-9 | | 1.20 (6H, d, J=6.9), 1.24 (6H, s), 2.74 (2H, s), 3.05 (1H, sept, J=6.9), 4.17 (2H, s), 4.39 (2H, s), 6.93-6.97 (1H, m), 7.18-7.24 (2H, m), 7.33-7.38 (1H, m) |
| II-10 | 82-83 | 1.20 (6H, d, J=6.9), 1.22 (6H, s), 2.70 (2H, s), 3.09 (1H, sept, J=6.9), 3.75 (3H, s), 4.07 (2H, s), 4.48 (2H, s), 6.92-6.95 (1H, m), 7.13-7.21 (2H, m), 7.31-7.35 (1H, m) |

表 5 3

| 化合物番号 | 物性 | |
|-------|-----------|---|
| No | 融点 | NMR (CDCl ₃) |
| II-11 | 95.5-96.5 | 1.20 (6H, d, J=6.9), 1.22 (6H, s), 1.29 (3H, t, J=7.3), 2.70 (2H, s), 3.09 (1H, sept, J=6.9), 4.06 (2H, s), 4.21 (2H, q, J=7.3), 4.48 (2H, s), 6.92-6.96 (1H, m), 7.15-7.19 (2H, m), 7.31-7.34 (1H, m) |
| II-12 | 83-86 | 0.96 (3H, t, J=7.3), 1.20 (6H, d, J=6.9), 1.22 (6H, s), 1.68 (2H, sext, J=7.3), 2.70 (2H, s), 3.09 (1H, sept, J=6.9), 4.07 (2H, s), 4.11 (2H, t, J=7.3), 4.48 (2H, s), 6.92-6.95 (1H, m), 7.13-7.20 (2H, m), 7.31-7.34 (1H, m) |
| II-13 | 95-96 | 1.20 (6H, d, J=6.9), 1.22 (6H, s), 1.27 (6H, d, J=6.3), 2.70 (2H, s), 3.09 (1H, sept, J=6.9), 4.02 (2H, s), 4.47 (2H, s), 5.06 (1H, sept, J=6.3), 6.92-6.97 (1H, m), 7.13-7.21 (2H, m), 7.29-7.34 (1H, m) |
| II-14 | | 1.20 (6H, d, J=6.9), 1.22 (6H, s), 1.47 (9H, s), 2.69 (2H, s), 3.09 (1H, sept, J=6.9), 3.97 (2H, s), 4.47 (2H, s), 6.92-6.96 (1H, m), 7.11-7.20 (2H, m), 7.31-7.34 (1H, m) |
| II-15 | | 1.21 (6H, d, J=6.9), 1.22 (6H, s), 2.70 (2H, s), 3.08 (1H, sept, J=6.9), 4.13 (2H, s), 4.48 (2H, s), 4.62 (1H, dd, J=6.3, 1.7), 4.95 (1H, dd, J=13.9, 1.7), 6.92-6.95 (1H, m), 7.13-7.35 (4H, m) |
| II-16 | | 1.20 (6H, d, J=6.9), 1.22 (6H, s), 2.69 (2H, s), 3.08 (1H, sept, J=6.9), 4.10 (2H, s), 4.47 (2H, s), 4.63-4.66 (2H, m), 5.23-5.39 (2H, m), 5.86-5.98 (1H, m), 6.92-6.95 (1H, m), 7.15-7.21 (2H, m), 7.31-7.34 (1H, m) |
| II-17 | | 1.20 (6H, d, J=6.9), 1.22 (6H, s), 2.70 (2H, s), 3.08 (1H, sept, J=6.9), 3.40 (3H, s), 3.61-3.65 (2H, m), 4.11 (2H, d, J=2.3), 4.29-4.37 (2H, m), 4.47 (2H, s), 6.92-6.95 (1H, m), 7.13-7.20 (2H, m), 7.31-7.34 (1H, m) |
| II-18 | | 1.19-1.23 (12H, m), 1.58 (3H, d, J=7.3), 2.62 (1H, d, J=13.2), 2.74 (1H, d, J=13.2), 3.11 (1H, sept, J=6.9), 3.74 (3H, s), 4.18 (1H, d, J=13.5), 4.66 (1H, q, J=7.3), 4.72 (1H, d, J=13.5), 6.91-6.94 (1H, m), 7.13-7.21 (2H, m), 7.31-7.35 (1H, m) |
| II-19 | | 1.21 (6H, d, J=6.9), 1.21 (6H, s), 1.28 (3H, t, J=7.3), 1.71 (6H, s), 2.66 (2H, s), 3.14 (1H, sept, J=6.9), 4.18 (2H, q, J=7.3), 4.40 (2H, s), 6.88-6.92 (1H, m), 7.13-7.21 (2H, m), 7.31-7.35 (1H, m) |
| II-20 | 117-119 | 1.21 (6H, d, J=6.9), 1.24 (6H, s), 2.69 (2H, s), 3.05 (1H, sept, J=6.9), 4.03 (2H, s), 4.48 (2H, s), 5.35 (1H, brs), 6.50 (1H, brs), 6.89-6.92 (1H, m), 7.14-7.22 (2H, m), 7.32-7.35 (1H, m) |

表 5 4

| 化合物番号 | 物性 | |
|-------|---------|--|
| No | 融点 | NMR (CDCl ₃) |
| II-21 | | 1.20 (6H, d, J=6.9), 1.22 (6H, s), 2.69 (2H, s), 2.97 (3H, s), 3.10 (1H, sept, J=6.9), 3.15 (3H, s), 4.20 (2H, s), 4.47 (2H, s), 6.94-6.97 (1H, m), 7.12-7.20 (2H, m), 7.30-7.33 (1H, m) |
| II-22 | | 1.20 (6H, d, J=6.9), 1.22 (6H, s), 2.71 (2H, s), 3.10 (1H, sept, J=6.9), 3.23 (3H, s), 3.82 (3H, s), 4.33 (2H, s), 4.47 (2H, s), 6.95-7.00 (1H, m), 7.12-7.21 (2H, m), 7.30-7.34 (1H, m) |
| II-23 | | 1.20 (6H, d, J=6.9), 1.23 (6H, s), 2.68 (2H, s), 3.09 (1H, sept, J=6.9), 4.22 (2H, q, J=9.9), 4.50 (2H, s), 6.89-6.95 (1H, m), 7.14-7.23 (2H, m), 7.31-7.36 (1H, m) |
| II-24 | | 1.18 (6H, d, J=6.9), 1.23 (6H, s), 2.07 (3H, s), 2.67 (2H, s), 3.09 (1H, sept, J=6.9), 3.57 (2H, t, J=6.6), 4.35 (2H, t, J=6.6), 4.49 (2H, s), 6.88-6.92 (1H, m), 7.13-7.22 (2H, m), 7.30-7.35 (1H, m) |
| II-25 | | 1.20 (6H, d, J=6.9), 1.23 (6H, s), 2.65 (2H, s), 3.10 (1H, sept, J=6.9), 3.71 (2H, t, J=6.6), 4.29 (2H, t, J=6.6), 4.49 (2H, s), 6.89-6.97 (4H, m), 7.15-7.21 (2H, m), 7.25-7.34 (3H, m) |
| II-26 | | 1.21 (6H, d, J=6.9), 1.23 (6H, s), 2.66 (2H, s), 3.10 (1H, sept, J=6.9), 3.60 (2H, t, J=6.6), 3.99-4.05 (3H, m), 4.24 (1H, dd, 14.2, 1.9), 4.49 (2H, s), 6.47 (1H, dd, 14.2, 6.9), 6.89-6.94 (1H, m), 7.15-7.21 (2H, m), 7.31-7.34 (1H, m) |
| II-27 | | 1.20 (6H, d, J=6.9), 1.23 (6H, s), 3.09 (1H, sept, J=6.9), 3.64 (2H, s, J=4.6), 3.84-4.03 (4H, m), 4.49 (2H, s), 5.21 (1H, t, J=4.6), 6.91-6.96 (1H, m), 7.12-7.21 (2H, m), 7.30-7.34 (1H, m) |
| II-28 | 124-126 | 1.17 (6H, d, J=6.9), 1.23 (6H, s), 2.38 (3H, s), 2.67 (2H, s), 3.06 (1H, sept, J=6.9), 4.50 (2H, s), 4.55 (2H, s), 6.05 (1H, s), 6.86-6.90 (1H, m), 7.12-7.19 (2H, m), 7.30-7.33 (1H, m) |
| II-29 | | 0.94 (6H, d, J=6.6), 1.17 (6H, d, J=6.9), 1.23 (6H, s), 1.93-2.08 (1H, m), 2.58 (2H, d, J=6.6), 2.66 (2H, s), 3.07 (1H, sept, J=6.9), 4.50 (2H, s), 4.55 (2H, s), 6.05 (1H, s), 6.85-6.91 (1H, m), 7.12-7.19 (2H, m), 7.28-7.33 (1H, m) |
| II-30 | 129-130 | 1.17 (6H, d, J=6.9), 1.23 (6H, s), 1.31 (9H, s), 2.67 (2H, s), 3.08 (1H, sept, J=6.9), 4.51 (2H, s), 4.59 (2H, s), 6.00 (1H, s), 6.87-6.91 (1H, m), 7.14-7.19 (2H, m), 7.30-7.33 (1H, m) |

表 5 5

| 化合物番号 | 物性 | |
|-------|-------------|--|
| No | 融点 | NMR (CDCl ₃) |
| II-31 | | 1.18 (6H, d, J=6.9), 1.24 (6H, s), 2.68 (2H, s), 3.07 (1H, sept, J=6.9), 4.52 (2H, s), 4.64 (2H, s), 6.61 (1H, s), 6.88-6.91 (1H, m), 7.12-7.19 (2H, m), 7.29-7.33 (1H, m), 7.41-7.48 (3H, m), 7.71-7.76 (2H, m) |
| II-32 | | 1.18 (6H, d, J=6.9), 1.22 (6H, s), 2.26 (3H, s), 2.66 (2H, s), 3.06 (1H, sept, J=6.9), 4.48 (2H, s), 4.58 (2H, s), 6.09 (1H, s), 6.87-6.92 (1H, m), 7.13-7.20 (2H, m), 7.28-7.34 (1H, m) |
| II-33 | | 1.18 (6H, d, J=6.9), 1.21 (6H, s), 1.25 (6H, d, J=6.9), 2.66 (2H, s), 3.02 (1H, sept, J=6.9), 3.04 (1H, sept, J=6.9), 4.49 (2H, s), 4.59 (2H, s), 6.12 (1H, s), 6.88-6.92 (1H, m), 7.13-7.21 (2H, m), 7.29-7.34 (1H, m) |
| II-34 | | 0.94 (6H, d, J=6.6), 1.18 (6H, d, J=6.9), 1.21 (6H, s), 1.88-2.05 (1H, m), 2.49 (2H, d, J=6.6), 2.65 (2H, s), 3.07 (1H, sept, J=6.9), 4.49 (2H, s), 4.59 (2H, s), 6.09 (1H, s), 6.87-6.91 (1H, m), 7.13-7.20 (2H, m), 7.29-7.34 (1H, m) |
| II-35 | 124-125 | 1.18 (6H, d, J=6.9), 1.21 (6H, s), 1.30 (9H, s), 2.65 (2H, s), 3.07 (1H, sept, J=6.9), 4.49 (2H, s), 4.59 (2H, s), 6.15 (1H, s), 6.88-6.93 (1H, m), 7.13-7.21 (2H, m), 7.29-7.34 (1H, m) |
| II-36 | | 1.17 (6H, d, J=6.9), 1.22 (6H, s), 1.26 (9H, s), 2.67 (2H, s), 3.07 (1H, sept, J=6.9), 4.49 (2H, s), 4.59 (2H, s), 6.61 (1H, s), 6.88-6.92 (1H, m), 7.11-7.18 (2H, m), 7.29-7.32 (1H, m) |
| II-37 | | 1.21 (6H, d, J=6.9), 1.23 (6H, s), 2.52-2.56 (4H, m), 2.65 (2H, s), 2.68-2.73 (2H, m), 3.11 (1H, sept, J=6.9), 3.41-3.52 (2H, m), 3.70-3.73 (4H, m), 4.48 (2H, s), 6.87-6.92 (1H, m), 7.15-7.19 (2H, m), 7.31-7.35 (1H, m) |
| II-38 | 123.5-124.5 | 1.20 (6H, d, J=6.9), 1.23 (6H, s), 1.38 (6H, s), 2.67 (2H, s), 2.80 (2H, s), 3.08 (1H, sept, J=6.9), 4.32 (2H, s), 4.49 (2H, s), 6.87-6.91 (1H, m), 7.16-7.21 (2H, m), 7.31-7.35 (1H, m) |
| II-39 | | 0.88 (6H, t, J=7.4), 1.20 (6H, d, J=6.9), 1.47-1.62 (4H, m), 2.61 (2H, s), 3.08 (1H, sept, J=6.9), 3.93-3.97 (2H, m), 4.43 (2H, s), 5.15-5.19 (1H, m), 5.28-5.39 (1H, m), 5.86-6.01 (1H, m), 6.89-6.94 (1H, m), 7.16-7.21 (2H, m), 7.30-7.36 (1H, m) |
| II-40 | | 0.87 (6H, t, J=7.4), 1.20 (6H, d, J=6.9), 1.28 (3H, t, J=7.3), 1.42-1.60 (4H, m), 2.64 (2H, s), 3.11 (1H, sept, J=6.9), 4.06 (2H, s), 4.21 (2H, q, J=7.3), 4.43 (2H, s), 6.91-6.96 (1H, m), 7.15-7.19 (2H, m), 7.31-7.34 (1H, m) |

表 5 6

| 化合物 番号 | 物性 | |
|-----------|----|--|
| No | 融点 | NMR (CDCl ₃) |
| II-41 | | 0.87 (6H, t, J=7.4), 1.20 (6H, d, J=6.9), 1.27 (6H, d, J=7.0), 1.48-1.63 (4H, m), 2.65 (2H, s), 3.11 (1H, sept, J=6.9), 4.02 (2H, s), 4.43 (2H, s), 5.01 (1H, sept, J=7.0), 6.91-6.96 (1H, m), 7.15-7.19 (2H, m), 7.31-7.34 (1H, m) |
| II-42 | | 0.88 (6H, t, J=7.4), 1.20 (6H, d, J=6.9), 1.46 (9H, s), 1.42-1.60 (4H, m), 2.64 (2H, s), 3.11 (1H, sept, J=6.9), 3.90 (2H, s), 4.42 (2H, s), 6.89-6.96 (1H, m), 7.18-7.23 (2H, m), 7.31-7.34 (1H, m) |
| II-43 | | 0.88 (6H, t, J=7.4), 1.20 (6H, d, J=6.9), 1.26 (3H, t, J=7.0), 1.42-1.60 (4H, m), 2.60 (2H, s), 2.79 (2H, t, J=7.2), 3.08 (1H, sept, J=6.9), 3.54 (2H, t, J=7.2), 4.16 (2H, q, J=7.0), 4.43 (2H, s), 6.89-6.94 (1H, m), 7.15-7.19 (2H, m), 7.31-7.34 (1H, m) |
| II-44 | | 0.88 (6H, t, J=7.4), 1.19 (6H, d, J=6.9), 1.50-1.70 (4H, m), 1.71 (3H, d, J=6.9), 2.61 (2H, s), 3.15 (1H, sept, J=6.9), 3.88 (2H, d, J=6.9), 4.43 (2H, s), 5.56-5.62 (1H, m), 5.69-5.78 (1H, m), 6.89-6.94 (1H, m), 7.11-7.21 (2H, m), 7.29-7.34 (1H, m) |
| II-45 | | 0.88 (6H, t, J=7.2), 1.19 (6H, d, J=6.9), 1.48-1.65 (4H, m), 1.72 (6H, d, J=6.9), 2.61 (2H, s), 3.15 (1H, sept, J=6.9), 3.89 (2H, d, J=6.9), 4.44 (2H, s), 5.28-5.35 (1H, m), 6.87-6.92 (1H, m), 7.11-7.21 (2H, m), 7.29-7.34 (1H, m) |
| II-46 | | 0.88 (6H, t, J=7.1), 1.19 (6H, d, J=6.9), 1.48-1.65 (4H, m), 2.47 (2H, q, J=7.4), 2.60 (2H, s), 3.12 (1H, sept, J=6.9), 3.34 (2H, t, J=7.4), 4.44 (2H, s), 5.01-5.14 (2H, m), 5.74-5.98 (1H, m), 6.82-6.89 (1H, m), 7.11-7.21 (2H, m), 7.29-7.34 (1H, m) |
| II-47 | | 0.85 (3H, t, J=7.4), 1.18 (3H, d, J=7.4), 1.23 (6H, s), 1.26 (3H, t, J=7.0), 1.42-1.60 (4H, m), 2.68 (2H, s), 3.11 (1H, sext, J=7.0), 4.06 (2H, s), 4.15 (2H, q, J=7.0), 4.38 (1H, d, J=13.5), 4.57 (1H, d, J=13.5), 6.83-6.90 (1H, m), 7.11-7.19 (2H, m), 7.28-7.31 (1H, m) |
| II-48 | | 0.85 (3H, t, J=7.4), 1.18 (3H, d, J=7.4), 1.23 (6H, s), 1.47 (9H, s), 1.42-1.60 (4H, m), 2.68 (2H, s), 3.00 (1H, sext, J=7.0), 4.01 (2H, s), 4.38 (1H, d, J=13.5), 4.57 (1H, d, J=13.5), 6.89-6.95 (1H, m), 7.11-7.19 (2H, m), 7.28-7.31 (1H, m) |
| II-49 | | 0.82-0.91 (9H, m), 1.17 (3H, d, J=6.9), 2.61 (2H, s), 2.87 (1H, sext, J=6.9), 3.65 (2H, d, J=6.9), 4.30 (1H, d, J=13.5), 4.57 (1H, d, J=13.5), 5.15-5.35 (2H, m), 5.86-5.99 (1H, m), 6.88-6.92 (1H, m), 7.11-7.28 (3H, m) |
| II-50 | | 0.83-0.92 (9H, m), 1.18 (3H, d, J=6.9), 1.47-1.69 (6H, m), 2.06 (3H, s), 2.62 (2H, s), 2.87 (1H, sext, J=6.9), 3.58 (2H, t, J=6.6), 4.31 (1H, d, J=13.9), 4.35 (2H, t, J=6.6), 4.55 (1H, d, J=13.9), 6.88-6.91 (1H, m), 7.11-7.20 (2H, m), 7.25-7.29 (1H, m) |

表 5 7

| 化合物 番号 | 物性 | |
|-----------|----|---|
| No | 融点 | NMR (CDCl ₃) |
| II-51 | | 0.83-0.92 (9H, m), 1.18 (3H, d, J=6.9), 2.53-2.56 (4H, m), 2.60 (2H, s), 2.71 (2H, t, J=7.3), 2.90 (1H, sept, J=6.9), 3.45 (2H, t, J=7.3), 3.69-3.73 (6H, m), 4.32 (1H, d, J=13.9), 4.55 (1H, d, J=13.9), 6.89-6.91 (1H, m), 7.14-7.20 (2H, m), 7.25-7.29 (1H, m) |
| II-52 | | 1.22 (6H, s), 1.24 (3H, t, J=7.3), 1.33 (3H, t, J=7.2), 2.64 (2H, q, J=7.3), 2.66 (2H, s), 4.06 (2H, s), 4.20 (2H, q, J=7.2), 4.48 (2H, s), 6.97 (2H, d, J=8.3), 7.20 (2H, d, J=8.3) |
| II-53 | | 1.22 (6H, s), 1.26 (6H, d, J=6.9), 1.29 (3H, t, J=7.2), 2.70 (2H, s), 2.94 (1H, sept, J=6.9), 4.06 (2H, s), 4.12 (2H, q, J=7.2), 4.49 (2H, s), 6.85-6.90 (2H, m), 7.04-7.10 (1H, m), 7.31-7.34 (1H, m) |
| II-54 | | 1.23 (6H, s), 1.29 (3H, t, J=7.3), 2.68 (2H, s), 2.72 (6H, s), 4.07 (2H, s), 4.22 (2H, q, J=7.3), 4.49 (2H, s), 6.98-7.10 (4H, m) |
| II-55 | | 1.27 (6H, s), 1.33 (3H, t, J=7.3), 2.73 (2H, s), 3.01 (6H, s), 4.10 (2H, s), 4.25 (2H, q, J=7.3), 4.54 (2H, s), 6.41 (1H, d, J=2.3), 6.48 (1H, d, J=7.6), 6.60 (1H, dd, J=7.6, 2.3), 7.20 (1H, d, J=7.6) |
| II-56 | | 1.16 (6H, t, J=7.3), 1.21 (6H, s), 1.28 (3H, t, J=7.3), 2.68 (2H, s), 3.35 (4H, q, J=7.3), 4.05 (2H, s), 4.19 (2H, q, J=7.3), 4.48 (2H, s), 6.29 (1H, d, J=2.3), 6.32 (1H, d, J=8.6), 6.50 (1H, dd, J=8.6, 2.3), 7.20 (1H, d, J=8.6) |
| II-57 | | 1.21 (6H, s), 1.22 (3H, t, J=7.6), 1.46 (9H, s), 2.65 (2H, q, J=7.6), 2.69 (2H, s), 3.96 (2H, s), 4.48 (2H, s), 6.97 (2H, d, J=8.3), 7.20 (2H, d, J=8.3) |
| II-58 | | 1.21 (6H, s), 1.25 (6H, d, J=6.9), 1.56 (9H, s), 2.69 (2H, s), 2.90 (1H, sept, J=6.9), 3.97 (2H, s), 4.48 (2H, s), 6.85-6.90 (2H, m), 7.04-7.10 (1H, m), 7.31-7.34 (1H, m) |
| II-59 | | 1.21 (6H, s), 1.56 (9H, s), 2.67 (2H, s), 2.69 (6H, s), 3.96 (2H, s), 4.47 (2H, s), 6.98-7.10 (4H, m) |
| II-60 | | 1.21 (6H, s), 1.47 (9H, s), 2.68 (2H, s), 2.96 (6H, s), 3.96 (2H, s), 4.48 (2H, s), 6.36 (1H, d, J=7.6), 6.37 (1H, d, J=2.3), 6.55 (1H, dd, J=7.6, 2.3), 7.20 (1H, d, J=7.6) |

表 5.8

| 化合物 番号 | 物性 | |
|-----------|----|--|
| No | 融点 | NMR (CDCl ₃) |
| II-61 | | 1.16 (6H, t, J=7.3), 1.21 (6H, s), 1.57 (9H, s), 2.68 (2H, s), 3.35 (4H, q, J=7.3), 3.93 (2H, s), 4.48 (2H, s), 6.29 (1H, d, J=2.3), 6.32 (1H, d, J=8.6), 6.50 (1H, dd, J=8.6, 2.3), 7.20 (1H, d, J=8.6) |
| II-62 | | 1.15 (6H, t, J=7.2), 1.22 (6H, s), 2.65 (2H, s), 3.31 (4H, q, J=7.3), 3.93-3.97 (2H, m), 4.49 (2H, s), 5.15-5.19 (1H, m), 5.28-5.39 (1H, m), 5.86-6.01 (1H, m), 6.28 (1H, d, J=2.2), 6.32 (1H, d, J=8.6), 6.50 (1H, dd, J=8.6, 2.2), 7.20 (1H, d, J=8.6) |
| II-63 | | 0.97 (6H, t, J=7.2), 1.22 (6H, s), 2.15 (3H, s), 2.64 (2H, s), 2.97 (4H, q, J=7.3), 3.93-3.97 (2H, m), 4.49 (2H, s), 5.15-5.19 (1H, m), 5.28-5.39 (1H, m), 5.86-6.01 (1H, m), 6.64 (1H, d, J=7.9), 6.90 (1H, d, J=7.9), 7.15 (1H, d, J=7.9) |
| II-64 | | 1.22 (6H, s), 2.16 (3H, s), 2.64 (2H, s), 2.68 (6H, s), 3.93-3.97 (2H, m), 4.49 (2H, s), 5.15-5.19 (1H, m), 5.28-5.39 (1H, m), 5.86-6.01 (1H, m), 6.63 (1H, d, J=7.9), 6.85 (1H, d, J=7.9), 7.12 (1H, d, J=7.9) |
| II-65 | | 0.88 (6H, t, J=7.3), 1.43-1.65 (4H, m), 2.60 (2H, s), 2.70 (6H, s), 3.94 (2H, d, J=6.9), 4.43 (2H, s), 5.16 (2H, d, J=10.2), 5.31 (1H, dd, J=16.8, 1.3), 5.86-6.01 (1H, m), 6.93-7.03 (3H, m), 7.08-7.14 (1H, m) |
| II-66 | | 0.87 (6H, t, J=7.3), 1.47 (9H, s), 1.48-1.63 (4H, m), 2.62 (2H, s), 2.70 (6H, s), 3.96 (2H, s), 4.43 (2H, s), 6.92-7.14 (4H, m) |
| II-67 | | 0.88 (6H, t, J=7.6), 1.47-1.65 (4H, m), 2.60 (2H, s), 3.82 (3H, s), 3.92-3.95 (2H, m), 4.48 (2H, s), 5.14-5.19 (1H, m), 5.32 (1H, dd, J=16.8, 1.3), 5.87-6.00 (1H, m), 6.93-7.00 (3H, m), 7.10-7.17 (1H, m) |
| II-68 | | 0.87 (6H, t, J=7.6), 1.47 (9H, s), 1.51-1.60 (4H, m), 2.63 (2H, s), 3.83 (3H, s), 3.96 (2H, s), 4.47 (2H, s), 6.93-7.03 (3H, m), 7.10-7.14 (1H, m) |
| II-69 | | 0.86 (6H, t, J=7.6), 1.24 (3H, t, J=7.6), 1.41-1.65 (4H, m), 2.61-2.71 (4H, m), 3.94 (2H, d, J=7.3), 4.45 (2H, s), 5.16 (1H, d, J=9.9), 5.28-5.34 (1H, m), 5.86-6.01 (1H, m), 6.94-6.98 (1H, m), 7.18-7.21 (2H, m) |
| II-70 | | 0.88 (6H, t, J=7.6), 1.47 (9H, s), 1.49-1.58 (4H, m), 2.61-2.70 (4H, m), 3.97 (2H, s), 4.45 (2H, s), 6.96-6.99 (2H, m), 7.18-7.21 (2H, m) |

表 5 9

| 化合物 番号 | 物性 | |
|-----------|-----------------|--|
| No | 融点 | NMR (CDCl ₃) |
| II-71 | | 0.89 (6H, t, J=7.6), 1.47-1.65 (4H, m), 2.64 (2H, s), 3.94 (2H, d, J=7.3), 4.45 (2H, s), 5.18 (1H, d, J=9.9), 5.32 (1H, dd, J=17.2, 1.3), 5.86-6.01 (1H, m), 7.01-7.06 (2H, m), 7.20-7.23 (2H, m) |
| II-72 | | 0.88 (6H, t, J=7.3), 1.47 (9H, s), 1.48-1.66 (4H, m), 2.67 (2H, s), 3.97 (2H, s), 4.44 (2H, s), 7.03-7.08 (2H, m), 7.20-7.26 (2H, m) |
| II-73 | 103.5- 104.5 | 0.88 (6H, t, J=7.3), 1.50-1.63 (4H, m), 2.62 (2H, s), 2.72 (6H, s), 3.43 (3H, s), 4.43 (2H, s), 5.45 (2H, s), 6.95-7.18 (4H, m) |
| II-74 | | 1.20 (6H, d, J=6.9), 1.60-1.87 (8H, m), 2.74 (2H, s), 3.10 (1H, sept, J=6.9), 3.93-3.96 (2H, m), 5.15 (1H, dd, J=9.9, 1.3), 5.31 (1H, dd, J=17.1, 1.3), 5.86-6.01 (1H, m), 6.90-9.94 (1H, m), 7.12-7.20 (2H, m), 7.31-7.34 (1H, m) |
| II-75 | | 1.62-1.86 (8H, m), 2.72 (6H, s), 3.92-3.95 (2H, m), 4.55 (2H, s), 5.15 (1H, d, J=10.0), 5.26-5.33 (1H, m), 5.86-5.98 (1H, m), 6.93-7.01 (3H, m), 7.09-7.16 (1H, m) |
| II-76 | | 1.47 (9H, s), 1.64-1.76 (8H, m), 2.71 (6H, s), 2.76 (2H, s), 3.95 (2H, s), 4.54 (2H, s), 6.92-7.05 (3H, m), 7.09-7.15 (1H, m) |
| II-77 | 85.5- 87.5 | 1.20 (6H, d, J=6.9), 1.60-1.84 (8H, m), 2.79 (2H, s), 3.09 (1H, sept, J=6.9), 3.40 (3H, s), 3.61-3.64 (2H, m), 4.09 (2H, s), 4.29-4.32 (2H, m), 4.52 (2H, s), 6.92-6.95 (1H, m), 7.13-7.20 (2H, m), 7.31-7.34 (1H, m) |
| II-78 | | 1.19 (6H, d, J=6.9), 1.60-1.87 (8H, m), 2.23 (3H, s), 2.76 (2H, s), 3.06 (1H, sept, J=6.9), 4.53 (2H, s), 4.57 (2H, s), 6.09 (1H, s), 6.87-6.92 (1H, m), 7.13-7.20 (2H, m), 7.29-7.34 (1H, m) |
| II-79 | | 1.64-1.84 (8H, m), 2.75 (2H, s), 3.83 (3H, s), 3.93 (2H, d, J=6.9), 4.56 (2H, s), 5.16 (1H, d, J=9.9), 5.31 (1H, dd, J=17.1, 1.7), 5.87-5.99 (1H, m), 6.92-7.01 (3H, m), 7.11-7.18 (1H, m) |
| II-80 | | 1.47 (9H, s), 1.64-1.83 (8H, m), 2.78 (2H, s), 3.84 (3H, s), 3.96 (2H, s), 4.55 (2H, s), 6.92-7.04 (3H, m), 7.11-7.18 (1H, m) |

表 6 0

| 化合物 番号 | 物性 | |
|-----------|-------------|---|
| No | 融点 | NMR (CDCl ₃) |
| II-81 | | 1.57-1.86 (8H, m), 2.73 (6H, s), 2.74 (2H, s), 3.42 (3H, s), 4.55 (2H, s), 5.44 (2H, s), 6.94-7.04 (3H, m), 7.11-7.17 (1H, m) |
| II-82 | | 1.24 (3H, t, J=7.6), 1.65-1.87 (8H, m), 2.65 (2H, m), 3.93-3.95 (2H, m), 4.54 (2H, m), 5.16 (1H, d, J=9.9), 5.27-5.35 (1H, m), 5.86-6.01 (1H, m), 6.93-6.98 (2H, m), 7.19-7.22 (1H, m) |
| II-83 | | 1.55-1.84 (8H, m), 2.77 (2H, s), 3.92-3.95 (2H, m), 4.55 (2H, s), 5.18 (1H, d, J=9.9), 5.28-5.35 (1H, m), 5.86-6.01 (1H, m), 7.01-7.06 (2H, m), 7.22 (2H, d, J=8.9) |
| II-84 | | 1.37-1.60 (8H, m), 1.73-1.86 (2H, m), 2.65 (2H, s), 2.70 (6H, s), 3.94 (2H, d, J=7.3), 4.52 (2H, s), 5.15 (1H, d, J=9.9), 5.30 (1H, dd, J=17.2, 1.3), 5.86-6.01 (1H, m), 6.93-7.15 (4H, m) |
| II-85 | | 1.36-1.62 (8H, m), 1.47 (9H, s), 1.69-1.82 (2H, m), 2.67 (2H, s), 2.70 (6H, s), 3.79 (2H, s), 4.52 (2H, s), 6.93-7.14 (4H, m) |
| II-86 | 108.5-109.5 | 1.33-1.62 (8H, m), 1.75-1.82 (2H, m), 2.65 (2H, s), 3.82 (3H, s), 3.94 (2H, d, J=6.9), 4.56 (2H, s), 5.15 (1H, d, J=10.2), 5.31 (1H, dd, J=17.2, 1.6), 5.88-6.02 (1H, m), 6.93-7.02 (3H, m), 7.10-7.17 (1H, m) |
| II-87 | | 1.23-1.78 (10H, m), 1.46 (9H, s), 2.67 (2H, s), 3.83 (3H, s), 3.97 (2H, s), 4.55 (2H, s), 6.89-7.05 (3H, m), 7.10-7.17 (12H, m) |
| II-88 | 98-100 | 1.24 (3H, t, J=7.6), 1.36-1.54 (8H, m), 1.76-1.81 (2H, m), 2.61-2.69 (4H, m), 3.94 (2H, d, J=6.9), 4.53 (2H, s), 5.16 (1H, d, J=9.9), 5.27-5.34 (1H, m), 5.86-5.98 (1H, m), 6.95-6.98 (2H, m), 7.18-7.21 (2H, m) |
| II-89 | | 1.20 (6H, d, J=6.9), 1.37-1.90 (16H, m), 2.66 (2H, s), 3.10 (1H, sept, J=6.9), 3.47-3.59 (3H, m), 3.69-4.06 (3H, m), 4.45 (1H, d, J=13.9), 4.59 (1H, d, J=13.9), 4.65-4.68 (1H, m), 6.90-6.93 (1H, m), 7.12-7.19 (2H, m), 7.29-7.34 (1H, m) |
| II-90 | | 1.20 (6H, d, J=6.9), 1.30-1.60 (8H, m), 1.72-1.83 (2H, m), 2.04 (2H, brs), 2.67 (2H, s), 3.09 (1H, sept, J=6.9), 3.56 (2H, t, J=5.9), 3.93 (2H, brs), 4.51 (2H, s), 6.91-6.94 (1H, m), 7.13-7.21 (2H, m), 7.29-7.34 (1H, m) |

表 6 1

| 化合物番号 | 物性 | |
|--------|-----------|---|
| No | 融点 | NMR (CDCl ₃) |
| II-91 | | 1.30-1.63 (8H, m), 1.75-1.82 (2H, m), 2.68 (2H, s), 3.93-3.96 (2H, m), 4.54 (2H, s), 5.17 (1H, dd, J=9.9, 1.3), 5.28-5.35 (1H, m), 5.86-6.01 (1H, m), 7.01-7.07 (2H, m), 7.20-7.23 (2H, m) |
| II-92 | 73.5-75.0 | 1.20 (6H, d, J=6.9), 1.58-1.67 (2H, m), 1.89-1.95 (2H, m), 2.73 (2H, s), 3.09 (1H, sept, J=6.6), 3.94 (2H, d, J=7.3), 4.66 (2H, s), 5.18 (1H, d, J=9.9), 5.29-5.36 (1H, m), 5.87-5.98 (1H, m), 7.15-7.19 (2H, m), 7.31-7.35 (1H, m) |
| II-93 | 127-128 | 1.21 (6H, d, J=6.6), 1.55-1.67 (2H, m), 1.89-1.97 (2H, m), 2.65 (3H, s), 2.74 (2H, s), 3.09 (1H, sept, J=6.6), 3.69-3.76 (4H, m), 4.69 (2H, s), 6.89-6.92 (1H, m), 7.13-7.21 (2H, m), 7.30-7.35 (1H, m) |
| II-94 | | 0.90 (6H, t, J=7.3), 1.20 (6H, d, J=7.3), 1.48-1.62 (4H, m), 2.69 (2H, s), 3.05 (1H, sept, J=7.3), 4.16 (2H, s), 4.38 (2H, s), 4.97 (1H, brs), 6.92-6.96 (1H, m), 7.13-7.21 (2H, m), 7.32-7.36 (1H, m) |
| II-95 | 98-99 | 1.23 (6H, s), 2.65 (2H, s), 4.00 (2H, d, J=6.9), 4.58 (2H, s), 5.19 (1H, d, J=6.9), 5.35 (1H, dd, J=17.2, 1.3), 5.90-6.03 (1H, m), 7.09 (1H, d, J=7.3), 7.42-7.53 (3H, m), 7.67 (1H, d, J=8.2), 7.85 (1H, dd, J=7.3, 3.0), 8.05 (1H, d, J=6.9) |
| II-96 | 120-121 | 1.23 (6H, s), 1.49 (9H, s), 2.69 (2H, s), 4.01 (2H, s), 4.57 (2H, s), 7.11 (1H, d, J=8.2), 7.42-7.51 (3H, m), 7.67 (1H, d, J=8.2), 7.84-7.87 (1H, m), 8.06 (1H, d, J=7.6) |
| II-97 | | 1.23 (6H, s), 2.69 (2H, s), 3.40 (3H, s), 3.61-3.65 (2H, m), 4.15 (2H, s), 4.30-4.33 (2H, m), 4.56 (2H, s), 7.11 (1H, dd, J=7.3, 1.0), 7.42-7.54 (3H, m), 7.67 (1H, d, J=8.2), 7.84-7.88 (1H, m), 8.04 (1H, dd, J=6.9, 3.3) |
| II-98 | 99-100 | 0.92 (6H, t, J=7.3), 1.22-1.60 (4H, m), 2.62 (2H, s), 4.00 (2H, s), 4.54 (2H, s), 5.19 (1H, d, J=9.9), 5.35 (1H, dd, J=17.2, 1.7), 5.93-6.03 (1H, m), 7.09 (1H, d, J=7.3), 7.42-7.52 (3H, m), 7.66 (1H, d, J=8.2), 7.83-7.86 (1H, m), 8.06 (1H, d, J=7.9) |
| II-99 | 111-113 | 0.90 (6H, t, J=6.9), 1.16-1.56 (4H, m), 1.49 (9H, s), 2.65 (2H, s), 4.02 (2H, s), 4.54 (2H, s), 7.10-7.12 (1H, m), 7.42-7.53 (3H, m), 7.66 (1H, d, J=8.2), 7.83-7.86 (1H, m), 8.05-8.08 (1H, m) |
| II-100 | 86-87 | 0.90 (6H, t, J=7.3), 1.43-1.66 (4H, m), 2.63 (2H, s), 4.00 (2H, d, J=6.9), 4.54 (2H, s), 5.20 (2H, d, J=9.9), 5.35 (1H, dd, J=16.8, 1.3), 5.90-6.05 (1H, m), 7.15-7.18 (1H, m), 7.38 (1H, dd, J=8.6, 4.3), 7.69 (1H, dd, J=8.6, 7.3), 7.92 (1H, d, J=8.6), 8.45 (1H, d, J=7.3), 8.93 (1H, dd, J=4.3, 1.7) |

表 6 2

| 化合物番号 | 物性 | |
|--------|-------------|---|
| No | 融点 | NMR (CDCl ₃) |
| II-101 | 103-104 | 1.59-1.84 (8H, m), 2.74 (2H, s), 3.97 (2H, d, J=6.9), 4.61 (2H, s), 5.17 (1H, d, J=10.2), 5.32 (1H, dd, J=16.8, 1.3), 5.88-6.01 (1H, m), 7.08 (1H, d, J=8.2), 7.41-7.52 (3H, m), 7.60 (1H, d, J=8.2), 7.84 (1H, dd, J=7.3, 2.6), 8.02 (1H, d, J=6.6) |
| II-102 | | 1.49 (9H, s), 1.54-1.90 (8H, m), 2.79 (2H, s), 4.00 (2H, s), 4.61 (2H, s), 7.11 (1H, dd, J=7.6, 1.3), 7.42-7.53 (3H, m), 7.67 (1H, d, J=8.2), 7.84-7.89 (1H, m), 8.02-8.06 (1H, m) |
| II-103 | | 1.58-1.85 (8H, m), 2.77 (2H, s), 3.99 (2H, d, J=7.3), 4.62 (2H, s), 5.19 (1H, d, J=8.9), 5.31-5.38 (1H, m), 5.91-6.04 (1H, m), 7.17 (1H, d, J=7.6), 7.39 (1H, dd, J=8.6, 4.3), 7.66-7.73 (1H, m), 7.93 (1H, d, J=8.6), 8.42 (1H, d, J=8.6), 8.93 (1H, dd, J=4.3, 2.0) |
| II-104 | 109-110 | 1.33-1.84 (10H, m), 2.66 (2H, s), 4.00 (2H, d, J=6.9), 4.63 (2H, s), 5.19 (1H, d, J=9.9), 5.35 (1H, dd, J=16.8, 1.3), 5.91-6.06 (1H, m), 7.10 (1H, d, J=7.3), 7.42-7.52 (3H, m), 7.66 (1H, J=8.2), 7.83-7.86 (1H, m), 8.06 (1H, d, J=7.3) |
| II-105 | | 1.30-1.63 (8H, m), 1.72-1.84 (2H, m), 2.68 (2H, s), 4.00 (2H, d, J=6.9), 4.62 (2H, s), 5.20 (1H, d, J=9.9), 5.35 (1H, dd, J=16.8, 1.3), 5.92-6.04 (1H, m), 7.17 (1H, d, J=6.9), 7.38 (1H, dd, J=8.6, 4.3), 7.66-7.72 (1H, m), 7.93 (1H, d, J=8.6), 8.45 (1H, d, J=8.6), 8.93 (1H, dd, J=4.3, 1.7) |
| II-106 | | 1.15 (6H, s), 1.22 (6H, d, J=6.9), 2.67 (2H, s), 3.02 (1H, sept, J=6.9), 4.08 (2H, s), 6.77-6.80 (1H, m), 7.07-7.18 (2H, m), 7.28-7.31 (1H, m), 7.77 (1H, dd, J=8.6, 2.6), 8.11 (1H, d, J=8.9), 8.57-8.58 (1H, m) |
| II-107 | 121.5-122.5 | 1.23 (6H, d, J=6.9), 1.27 (6H, s), 2.80 (2H, s), 3.17 (1H, sept, J=6.9), 4.36 (2H, s), 6.80-6.84 (1H, m), 7.13-7.23 (3H, m), 7.32-7.42 (2H, m), 7.70-7.79 (2H, m) |
| II-108 | 158.5-159.5 | 1.20 (6H, s), 1.27 (6H, d, J=6.9), 2.72 (2H, s), 3.29 (1H, sept, J=6.9), 3.99 (2H, s), 6.80-6.84 (1H, m), 7.09-7.39 (6H, m), 7.53-7.56 (1H, m) |
| II-109 | | 1.16 (6H, s), 1.23 (6H, d, J=6.9), 2.67 (2H, s), 3.00 (1H, sept, J=6.9), 4.19 (2H, s), 6.79-6.83 (1H, m), 7.11-7.21 (2H, m), 7.30-7.34 (1H, m), 8.18 (1H, d, J=9.2), 8.32 (1H, dd, J=9.2, 2.6), 9.17 (1H, d, J=2.6) |
| II-110 | | 0.94 (2H, t, J=7.3), 1.14 (6H, s), 1.57-1.71 (2H, m), 2.57 (2H, t, J=7.3), 2.67 (2H, s), 4.09 (2H, s), 6.81-6.87 (2H, m), 7.08-7.16 (2H, m), 7.75 (1H, dd, J=8.9, 2.6), 8.09 (1H, d, J=8.9), 8.55 (1H, s) |

表 6 3

| 化合物番号 | 物性 | |
|--------|---------|---|
| No | 融点 | NMR (CHCl ₃) |
| II-111 | | 0.88 (6H, t, J=7.4), 1.22 (6H, d, J=6.9), 1.42-1.52 (4H, m), 2.61 (2H, s), 3.06 (1H, sept, J=6.9), 4.11 (2H, s), 6.75-6.80 (1H, m), 7.07-7.18 (2H, m), 7.29-7.34 (1H, m), 7.75 (1H, dd, J=8.6, 2.6), 8.08 (1H, d, J=8.9), 8.57-8.58 (1H, m) |
| II-112 | | 1.20 (6H, d, J=6.9), 1.28 (6H, s), 2.85 (2H, s), 2.95 (1H, sept, J=6.9), 4.34 (2H, s), 6.72-6.79 (1H, m), 7.14-7.20 (2H, m), 7.31-7.36 (1H, m) |
| II-113 | 120-121 | 1.19 (6H, d, J=6.9), 1.58-1.66 (2H, m), 1.88-1.98 (2H, m), 2.38-2.60 (4H, m), 2.64 (3H, s), 2.69 (2H, s), 3.08 (1H, sept, J=6.9), 3.52 (2H, s), 4.59 (2H, s), 6.89-6.92 (1H, m), 7.12-7.34 (8H, m) |
| II-114 | | 0.89 (6H, t, J=7.3), 1.43-1.65 (4H, m), 2.49 (3H, s), 2.62 (2H, s), 3.93-3.96 (2H, m), 4.45 (2H, s), 5.17 (1H, m), 5.31 (1H, m), 5.89 (1H, m), 6.80 (1H, m), 6.91 (1H, m), 7.04 (1H, m), 7.24-7.30 (2H, m) |
| II-115 | | 1.57-1.88 (8H, m), 2.49 (3H, s), 2.75 (2H, s), 3.95 (2H, m), 4.55 (2H, s), 5.17 (1H, m), 5.32 (1H, m), 5.93 (1H, m), 6.80 (1H, m), 6.91 (1H, m), 7.05 (1H, m), 7.29 (1H, m) |
| II-116 | | 1.32-1.60 (8H, m), 1.72-1.84 (2H, m), 2.49 (3H, s), 2.66 (2H, s), 3.95 (2H, m), 4.54 (2H, s), 5.17 (1H, d, J=10.2), 5.32 (1H, dd, J=17.2, 1.3), 5.89 (1H, m), 6.80 (1H, m), 6.91 (1H, m), 7.04 (1H, m), 7.28 (1H, m) |
| II-117 | | 1.65-1.86 (8H, m), 2.49 (3H, s), 2.75 (2H, s), 3.93 (2H, m), 4.54 (2H, s), 5.17 (1H, m), 5.31 (1H, m), 5.89 (1H, m), 6.96-7.01 (2H, m), 7.26-7.31 (2H, m) |
| II-118 | 111-112 | 1.37-1.63 (8H, m), 1.73-1.84 (2H, m), 2.49 (3H, s), 2.67 (2H, s), 3.94 (2H, m), 4.53 (2H, s), 5.17 (1H, d, J=10.2), 5.31 (1H, dd, J=17.2, 1.7), 5.92 (1H, m), 6.97-7.01 (2H, m), 7.26-7.30 (2H, m) |
| II-119 | | 1.22 (6H, s), 1.25 (3H, t, J=6.9), 2.62 (2H, s), 2.65 (2H, q, J=6.9), 3.81 (3H, s), 3.95 (2H, m), 4.50 (2H, s), 5.17 (1H, m), 5.29 (1H, m), 5.94 (1H, m), 6.80-6.84 (2H, m), 6.93 (1H, m) |
| II-120 | | 1.22 (6H, s), 1.24 (6H, d, J=6.9), 2.64 (2H, s), 2.89 (1H, sept, J=6.9), 3.82 (3H, s), 3.95 (2H, m), 4.49 (2H, s), 5.17 (1H, m), 5.28 (1H, m), 5.94 (1H, m), 6.89-6.94 (2H, m), 6.93 (1H, m) |
| II-121 | | 1.18 (6H, d, J=6.9), 1.22 (6H, s), 2.64 (2H, s), 3.10 (1H, sept, J=6.9), 3.81 (3H, s), 3.95 (2H, m), 4.47 (2H, s), 5.17 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.72 (1H, m), 6.85-6.95 (2H, m) |
| II-122 | | 1.17 (6H, d, J=6.9), 1.22 (6H, s), 1.43 (3H, t, J=7.5), 2.65 (2H, s), 3.05 (1H, sept, J=6.9), 3.95 (2H, m), 4.05 (2H, q, J=7.5), 4.46 (2H, s), 5.17 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.72 (1H, m), 6.85-6.90 (2H, m) |

表 6 4

| 化合物番号 | 物性 | |
|--------|---------|---|
| No | 融点 | NMR (CDCl ₃) |
| II-123 | | 1.22 (6H, s), 1.45 (6H, t, J=7.4), 2.64 (2H, s), 3.95 (2H, m), 4.10 (4H, q, J=7.4), 4.48 (2H, s), 5.17 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.55-6.63 (2H, m), 6.88 (1H, m). |
| II-124 | | 1.05 (6H, t, J=7.4), 1.22 (6H, s), 1.78-1.86 (4H, m), 2.66 (2H, s), 3.93 (4H, q, J=7.4), 3.95 (2H, m), 4.48 (2H, s), 5.17 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.55-6.68 (2H, m), 6.88 (1H, m). |
| II-125 | 86-88 | 1.23 (6H, s), 1.45 (3H, t, J=7.4), 2.67 (2H, s), 3.22 (3H, s), 3.95 (2H, m), 4.12 (2H, q, J=7.4), 4.47 (2H, s), 5.17 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.95-6.99 (2H, m), 7.12 (1H, m). |
| II-126 | 65-66 | 1.22 (6H, s), 1.25 (3H, t, J=6.9), 2.65 (2H, s), 3.54 (2H, q, J=6.9), 3.95 (2H, m), 4.49 (2H, s), 5.17 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.99 (2H, d, J=7.9), 7.34 (2H, d, J=7.9). |
| II-127 | | 0.88 (6H, t, J=7.4), 1.45 (3H, t, J=7.4), 1.44-1.58 (4H, m), 2.62 (2H, s), 3.80 (3H, s), 3.95 (2H, m), 4.11 (2H, q, J=7.4), 4.45 (2H, s), 5.17 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.50-6.65 (2H, m), 6.88 (1H, m). |
| II-128 | | 0.88 (6H, t, J=7.4), 1.45 (6H, t, J=7.4), 1.44-1.58 (4H, m), 2.62 (2H, s), 3.95 (2H, m), 4.11 (4H, q, J=7.4), 4.45 (2H, s), 5.17 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.55-6.65 (2H, m), 6.88 (1H, m). |
| II-129 | 62-64 | 0.88 (6H, t, J=7.4), 1.04 (3H, t, J=7.4), 1.43 (3H, t, J=7.4), 1.44-1.58 (4H, m), 1.86 (2H, sext, J=7.4), 2.62 (2H, s), 3.95 (2H, m), 3.98 (2H, t, J=7.4), 4.10 (2H, q, J=7.4), 4.49 (2H, s), 5.13 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.55-6.65 (2H, m), 6.88 (1H, m). |
| II-130 | 104-105 | 0.88 (6H, t, J=7.4), 1.06 (3H, t, J=7.4), 1.44-1.58 (4H, m), 1.86 (2H, sext, J=7.4), 2.62 (2H, s), 3.21 (3H, s), 3.95 (2H, m), 3.98 (2H, t, J=7.4), 4.43 (2H, s), 5.13 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.84-6.88 (2H, m), 7.13 (1H, m). |
| II-131 | 70-72 | 0.88 (6H, t, J=7.4), 1.04 (6H, t, J=7.4), 1.44-1.58 (4H, m), 1.86 (4H, m), 2.64 (2H, s), 3.95 (2H, m), 3.98 (2H, t, J=7.4), 4.49 (2H, s), 5.13 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.55-6.65 (2H, m), 6.88 (1H, m). |
| II-132 | 59-60 | 0.88 (6H, t, J=7.4), 1.04 (3H, t, J=7.4), 1.35 (6H, d, J=6.9), 1.44-1.58 (4H, m), 1.79 (2H, sext, J=7.4), 2.62 (2H, s), 3.95 (2H, m), 3.98 (2H, t, J=7.4), 4.46 (1H, sept, J=6.9), 4.46 (2H, s), 5.13 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.52-6.61 (2H, m), 6.88 (1H, m). |
| II-133 | | 1.22 (6H, s), 2.30 (6H, s), 2.51-2.60 (2H, m), 2.65 (2H, s), 2.81-2.88 (2H, m), 3.95 (2H, m), 4.49 (2H, s), 5.17 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.98 (2H, d, J=7.9), 7.20 (2H, d, J=7.9). |

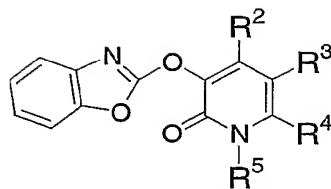
表 6 5

| 化合物番号 | 物性 | |
|--------|-------|---|
| No | 融点 | NMR (CDCl ₃) |
| II-134 | | 1.20 (6H, d, J=6.9), 1.32-1.60 (8H, m), 1.47 (9H, s), 1.70-1.81 (2H, m), 2.70 (2H, s), 3.09 (1H, sept, J=6.9), 3.97 (2H, s), 4.52 (2H, s), 6.95 (1H, m), 7.11-7.20 (2H, m), 7.31 (1H, m) |
| II-135 | | 1.20 (6H, d, J=6.9), 1.58-1.68 (2H, m), 1.93-1.97 (2H, m), 2.31 (3H, s), 2.38-2.59 (4H, m), 2.64 (3H, s), 2.68 (2H, s), 3.09 (1H, sept, J=6.9), 4.59 (2H, s), 6.91 (1H, m), 7.13-7.21 (2H, m), 7.33 (1H, m) |
| II-136 | | 1.11 (3H, t, J=6.9), 1.20 (6H, d, J=6.9), 1.65-1.70 (2H, m), 1.94-2.00 (2H, m), 2.41-2.50 (4H, m), 2.56-2.69 (2H, m), 2.65 (3H, s), 2.69 (2H, s), 3.09 (1H, sept, J=6.9), 4.60 (2H, s), 6.91 (1H, m), 7.13-7.21 (2H, m), 7.33 (1H, m) |
| II-137 | 67-68 | 1.22 (6H, s), 2.65 (2H, s), 3.93-3.97 (2H, m), 4.45 (2H, s), 5.17 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.85-6.91 (2H, m), 7.02 (1H, m). |
| II-138 | 80-82 | 1.22 (6H, s), 2.66 (2H, s), 3.95 (2H, m), 4.46 (2H, s), 5.17 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.85 (1H, dd, J=8.2, 2.0), 7.16 (1H, d, J=2.0), 7.44 (1H, d, J=8.2). |
| II-139 | | 1.22 (6H, s), 2.21 (3H, s), 2.64 (2H, s), 3.93-3.97 (2H, m), 4.51 (2H, s), 5.17 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.85 (1H, d, J=8.2), 7.16 (1H, dd, J=8.2, 2.0), 7.22 (1H, d, J=2.0). |
| II-140 | | 1.22 (6H, s), 2.30 (3H, s), 2.64 (2H, s), 3.95 (2H, m), 4.51 (2H, s), 5.17 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.89 (1H, d, J=8.2), 7.16 (1H, dd, J=8.2, 2.0), 7.30 (1H, d, J=2.0). |
| II-141 | | 1.22 (6H, s), 2.65 (2H, s), 2.88 (2H, t, J=7.1), 3.36 (3H, s), 3.66 (2H, t, J=7.1), 3.95 (2H, m), 4.49 (2H, s), 5.17 (1H, m), 5.28 (1H, m), 5.97 (1H, m), 6.98 (2H, d, J=8.3), 7.20 (2H, d, J=8.3). |
| II-142 | | 1.25 (6H, d, J=6.9), 1.55-1.87 (8H, m), 2.72 (2H, s), 2.91 (1H, sept, J=6.9), 3.93 (2H, m), 4.54 (2H, s), 5.16 (1H, m), 5.30 (1H, m), 5.93 (1H, m), 6.95-7.00 (2H, m), 7.21-7.24 (2H, m) |
| II-143 | | 1.25 (6H, d, J=6.9), 1.47 (9H, s), 1.63-1.85 (8H, m), 2.78 (2H, s), 2.91 (1H, sept, J=6.9), 3.95 (2H, s), 4.53 (2H,), 6.96-7.01 (2H, m), 7.20-7.24 (2H, m) |

表 6 6

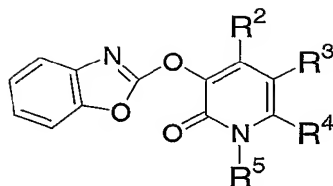
| 化合物 番号 | 物性 | |
|-----------|-----------|---|
| No | 融点 | NMR (CDCl ₃) |
| II-144 | | 0.88 (6H, t, J=7.3), 1.25 (6H, d, J=6.9), 1.43-1.68 (4H, m), 2.61 (2H, s), 2.90 (1H, sept, J=6.9), 3.94 (2H, m), 4.45 (2H, s), 5.15 (1H, m), 5.31 (1H, m), 5.94 (1H, m), 6.95-6.99 (2H, m), 7.20-7.24 (2H, m) |
| II-145 | | 0.87 (6H, t, J=7.3), 1.25 (6H, d, J=6.9), 1.47 (9H, s), 1.48-1.70 (4H, m), 2.65 (2H, s), 2.90 (1H, sept, J=6.9), 3.96 (2H, s), 4.44 (2H, s), 6.97-7.01 (2H, m), 7.20-7.23 (2H, m) |
| II-146 | 90.5-92.5 | 1.25 (6H, d, J=6.9), 1.30-1.62 (8H, m), 1.73-1.85 (2H, m), 2.66 (2H, s), 2.91 (1H, sept, J=6.9), 3.94 (2H, m), 4.54 (2H, s), 5.16 (1H, dd, J=9.9, 1.3), 5.31 (1H, m), 5.94 (1H, m), 6.96-7.00 (2H, m), 7.20-7.24 (2H, m) |
| II-147 | | 0.90 (6H, t, J=6.9), 1.15-1.57 (8H, m), 1.47 (9H, s), 2.64 (2H, s), 3.83 (3H, s), 3.96 (2H, s), 4.46 (2H, s), 6.92-6.97 (2H, m), 7.02 (1H, dd, J=7.9, 1.6), 7.13 (1H, m) |
| II-148 | | 1.00 (6H, d, J=6.9), 1.06 (6H, d, J=6.9), 1.46 (9H, s), 2.01 (2H, sept, J=6.9), 2.80 (2H, s), 3.82 (3H, s), 3.87 (2H, s), 4.66 (2H, s), 6.91-7.01 (3H, m), 7.13 (1H, m) |
| II-149 | | 0.92 (6H, t, J=7.3), 1.16-1.54 (8H, m), 2.61 (2H, s), 3.82 (3H, s), 3.94 (2H, dd, J=6.9, 1.0), 4.47 (2H, s), 5.16 (1H, m), 5.32 (1H, m), 5.94 (1H, m), 6.92-7.01 (3H, m), 7.13 (1H, m) |
| II-150 | | 0.85 (3H, t, J=7.3), 1.18 (3H, d, J=6.9), 1.47-1.68 (4H, m), 1.90-2.00 (2H, m), 2.31 (3H, s), 2.39-2.63 (4H, m), 2.65 (3H, s), 2.69 (2H, d, J=2.3), 2.89 (1H, sext, J=7.3), 4.46 (1H, d, J=13.8), 4.71 (1H, d, 13.8), 6.92 (1H, m), 7.12-7.29 (3H, m) |
| II-151 | | 1.37-1.63 (8H, m), 1.48 (9H, s), 1.70-1.83 (2H, m), 2.67 (2H, s), 4.02 (2H, s), 4.62 (2H, s), 7.11 (1H, dd, J=7.6, 1.3), 7.42-7.53 (3H, m), 7.67 (1H, d, J=8.2), 7.85 (1H, dd, J=6.9, 3.3), 8.07 (1H, m) |
| II-152 | | 0.88 (6H, t, J=7.3), 1.44-1.65 (4H, m), 1.49 (9H, s), 2.65 (2H, s), 4.02 (2H, s), 4.54 (2H, s), 7.11 (1H, dd, J=7.3, 1.0), 7.42-7.53 (3H, m), 7.67 (1H, J=8.2), 7.85 (1H, dd, J=5.6, 3.3), 8.07 (1H, dd, J=7.3, 3.3) |
| II-153 | | 1.21 (6H, d, J=6.9), 1.58-1.67 (2H, m), 2.31 (3H, s), 2.33 (3H, s), 2.41-2.45 (4H, m), 2.67 (2H, s), 3.13 (1H, sept, J=6.9), 3.89 (2H, s), 6.80 (1H, m), 7.10-7.18 (2H, m), 7.31 (1H, m) |
| II-154 | | 0.85 (3H, t, J=7.3), 1.19 (3H, d, J=7.3), 1.47-1.81 (6H, m), 2.31 (3H, s), 2.32 (3H, s), 2.40-2.50 (4H, m), 2.67 (2H, s), 2.92 (1H, sext, J=7.3), 3.84 (1H, d, J=13.9), 6.80 (1H, m), 7.11-7.17 (2H, m), 7.25 (1H, m) |

表 6 7



| 化合物 No. | R ² | R ³ | R ⁴ | R ⁵ | ¹ H-NMR (CDCl ₃) |
|------------|----------------|----------------|----------------|----------------|--|
| 1-001 | H | Me | Me | Me | 2.16 (s, 3H), 2.33 (s, 3H), 3.62 (s, 3H), 7.17-7.26 (m, 2H), 7.34 (s, 1H), 7.34-7.43 (m, 1H), 7.46-7.50 (m, 1H). |
| 1-002 | H | Me | Me | Et | 1.32 (t, <i>J</i> = 7.2 Hz, 3H), 2.15 (s, 3H), 2.36 (s, 3H), 4.19 (q, <i>J</i> = 7.2 Hz, 2H), 7.19-7.25 (m, 2H), 7.34 (s, 1H), 7.39-7.42 (m, 1H), 7.46-7.49 (m, 1H). |
| 1-003 | H | Me | Me | nPr | 0.98 (t, <i>J</i> = 7.2 Hz, 3H), 1.65-1.78 (m, 2H), 2.15 (s, 3H), 2.34 (s, 3H), 4.03-4.08 (m, 2H), 7.16-7.26 (m, 2H), 7.33 (s, 1H), 7.38-7.41 (m, 1H), 7.46-7.49 (m, 1H). |
| 1-004 | H | Me | Me | nBu | 0.95 (t, <i>J</i> = 7.5 Hz, 3H), 1.35-1.48 (m, 2H), 1.62-1.72 (m, 2H), 2.15 (s, 3H), 2.35 (s, 3H), 4.10 (t, <i>J</i> = 7.8 Hz, 2H), 7.19-7.25 (m, 2H), 7.33 (s, 1H), 7.38-7.42 (m, 1H), 7.46-7.49 (m, 1H). |
| 1-005 | H | Me | Me | Bn | 2.14 (s, 3H), 2.25 (s, 3H), 5.42 (br s, 2H), 7.17-7.51 (m, 10H). |
| 1-006 | H | | H | nBu | 0.94 (t, <i>J</i> = 7.4 Hz, 3H), 1.35-1.48 (m, 2H), 1.76-1.86 (m, 2H), 4.06 (t, <i>J</i> = 7.4 Hz, 2H), 7.22-7.28 (m, 3H), 7.34-7.51 (m, 7H), 7.81 (d, <i>J</i> = 2.5 Hz, 1H). |
| 1-007 | H | | H | nBu | 0.96 (t, <i>J</i> = 7.3 Hz, 3H), 1.35-1.48 (m, 2H), 1.75-1.85 (m, 2H), 4.05 (t, <i>J</i> = 7.3 Hz, 2H), 7.10-7.17 (m, 2H), 7.22-7.24 (m, 3H), 7.37-7.44 (m, 3H), 7.48-7.52 (m, 1H), 7.76 (d, <i>J</i> = 2.7 Hz, 1H). |
| 1-008 | H | | H | nBu | 0.97 (t, <i>J</i> = 7.3 Hz, 3H), 1.36-1.49 (m, 2H), 1.79-1.87 (m, 2H), 4.08 (t, <i>J</i> = 7.3 Hz, 2H), 7.23-7.27 (m, 2H), 7.37-7.44 (m, 2H), 7.45-7.52 (m, 1H), 7.50 (d, <i>J</i> = 2.7 Hz, 1H), 7.75-7.78 (m, 1H), 7.81 (d, <i>J</i> = 2.7 Hz, 1H), 8.61 (d, <i>J</i> = 3.7 Hz, 1H), 8.74 (s, 1H). |

表 6 8

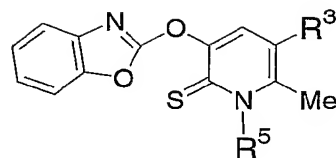


| 化合物 No. | R ² | R ³ | R ⁴ | R ⁵ | ¹ H-NMR (CDCl ₃) |
|------------|----------------|----------------|----------------|----------------|---|
| 1-009 | H | | H | nBu | 0.97 (t, <i>J</i> = 7.4 Hz, 3H), 1.38-1.48 (m, 2H), 1.75-1.85 (m, 2H), 4.05 (t, <i>J</i> = 7.4 Hz, 2H), 6.92 (s, 1H), 7.23-7.52 (m, 6H), 7.67-7.69 (m, 2H), 7.71 (d, <i>J</i> = 2.7 Hz, 1H), 7.89 (d, <i>J</i> = 2.7 Hz, 1H). |
| 1-010 | Me | H | Me | nBu | 0.94 (t, <i>J</i> = 7.5 Hz, 3H), 1.39 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.61-1.71 (m, 2H), 2.21 (s, 3H), 2.37 (s, 3H), 3.99 (t, <i>J</i> = 7.8 Hz, 2H), 5.95 (s, 1H), 7.18 (ddd, <i>J</i> = 7.5, 7.5, 1.8 Hz), 7.23 (ddd, <i>J</i> = 7.5, 7.5, 1.8 Hz, 1H), 7.40 (m, 1H), 7.47 (m, 1H). |
| 1-011 | | H | Me | nBu | 0.94 (t, <i>J</i> = 7.5 Hz, 3H), 1.37 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.68-1.78 (m, 2H), 1.73 (d, <i>J</i> = 1.0 Hz, 3H), 3.32 (s, 2H), 3.94 (t, <i>J</i> = 7.5 Hz, 2H), 4.82 (s, 1H), 4.88 (s, 1H), 6.18 (d, <i>J</i> = 7.2 Hz, 1H), 7.17 (d, <i>J</i> = 7.2 Hz, 1H), 7.19 (ddd, <i>J</i> = 7.5, 7.5, 1.5 Hz, 1H), 7.23 (ddd, <i>J</i> = 7.5, 7.5, 1.5 Hz, 1H), 7.40 (m, 1H), 7.48 (m, 1H). |

表 6 9

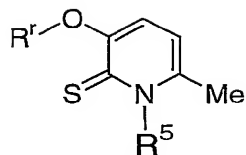
| 化合物 No. | 構造 | ¹ H-NMR (CDCl ₃) |
|------------|----|---|
| 1-012 | | 2.16 (s, 3H), 2.36 (s, 3H), 7.20-7.29 (m, 2H), 7.40-7.44 (m, 1H), 7.58-7.61 (m, 1H), 7.83 (s, 1H). |
| 1-013 | | 0.95 (t, <i>J</i> = 7.2 Hz), 1.35-1.48 (m, 2H), 1.60-1.72 (m, 2H), 2.15 (s, 3H), 2.39 (s, 3H), 4.11 (t, <i>J</i> = 7.8 Hz, 2H), 7.22-7.29 (m, 2H), 7.41-7.44 (m, 1H), 7.57-7.61 (m, 1H), 7.81 (s, 1H). |
| 1-014 | | 0.96 (t, <i>J</i> = 7.2 Hz, 6H), 1.30-1.60 (m, 4H), 1.60-1.75 (m, 2H), 1.76-1.90 (m, 2H), 2.31 (s, 3H), 3.89 (t, <i>J</i> = 6.9 Hz, 2H), 4.02 (t, <i>J</i> = 8.1 Hz, 2H), 5.88 (d, <i>J</i> = 7.8 Hz, 1H), 6.52 (d, <i>J</i> = 7.2 Hz, 1H). |
| 1-015 | | 0.94 (t, <i>J</i> = 7.5 Hz, 3H), 1.40 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.66 (quint, <i>J</i> = 7.5 Hz, 2H), 1.74 (quint, <i>J</i> = 6.0 Hz, 2H), 1.87 (quint, <i>J</i> = 6.0 Hz, 2H), 2.58 (t, <i>J</i> = 6.0 Hz, 2H), 2.69 (t, <i>J</i> = 6.0 Hz, 2H), 4.02 (t, <i>J</i> = 7.8 Hz, 2H), 7.16-7.26 (m, 2H), 7.24 (s, 1H), 7.40 (dd, <i>J</i> = 6.9 Hz, 2.4 Hz, 1H), 7.48 (dd, <i>J</i> = 6.9 Hz, 2.4 Hz, 1H). |
| 1-016 | | 0.96 (t, <i>J</i> = 7.5 Hz, 3H), 1.42 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.60-1.76 (m, 4H), 1.81 (quint, <i>J</i> = 6.0 Hz, 2H), 2.43 (t, <i>J</i> = 6.0 Hz, 2H), 2.61 (t, <i>J</i> = 6.0 Hz, 2H), 4.01 (t, <i>J</i> = 7.8 Hz, 2H), 5.07 (s, 2H), 6.43 (s, 1H), 7.28-7.39 (m, 1H), 7.34 (d, <i>J</i> = 7.5 Hz, 2H), 7.45 (d, <i>J</i> = 7.5 Hz, 2H). |
| 1-017 | | 3.23 (t, <i>J</i> = 7.5 Hz, 2H), 4.24 (t, <i>J</i> = 7.5 Hz, 2H), 6.10 (t, <i>J</i> = 6.9 Hz, 1H), 6.99 (dd, <i>J</i> = 1.8, 6.9 Hz, 1H), 7.08-7.29 (m, 5H), 7.42-7.45 (m, 1H), 7.49-7.52 (m, 2H), 7.56 (dd, <i>J</i> = 1.2, 7.8 Hz, 1H). |
| 1-018 | | 3.03 (t, <i>J</i> = 6.1 Hz, 2H), 4.34 (t, <i>J</i> = 6.1 Hz, 2H), 6.74 (d, <i>J</i> = 7.9 Hz, 1H), 7.19-7.45 (m, 6H), 7.50 (d, <i>J</i> = 6.4 Hz, 1H), 7.61 (d, <i>J</i> = 7.9 Hz, 1H), 7.73 (d, <i>J</i> = 7.3 Hz, 1H). |
| 1-019 | | 0.96 (t, <i>J</i> = 7.5 Hz, 3H), 1.41 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.58-1.73 (m, 4H), 1.81 (quint, <i>J</i> = 6.0 Hz, 2H), 2.45 (t, <i>J</i> = 6.0 Hz, 2H), 2.61 (t, <i>J</i> = 6.0 Hz, 2H), 3.18 (t, <i>J</i> = 7.5 Hz, 2H), 4.00 (t, <i>J</i> = 7.8 Hz, 2H), 4.07 (t, <i>J</i> = 7.5 Hz, 2H), 6.34 (s, 1H), 7.21-7.33 (m, 5H). |

表 7 0



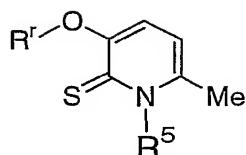
| 化合物 No. | R ³ | R ⁵ | ¹ H-NMR (CDCl ₃) |
|------------|----------------|----------------|---|
| 2-001 | Me | Me | 2.28 (s, 3H), 2.49 (s, 3H), 4.17 (s, 3H), 7.19-7.24 (m, 2H), 7.40 (s, 1H), 7.43-7.49 (m, 2H). |
| 2-002 | Me | Et | 1.46 (t, <i>J</i> = 7.2 Hz, 3H), 2.25 (s, 3H), 2.55 (s, 3H), 4.92 (br s, 2H), 7.18-7.24 (m, 2H), 7.37 (s, 1H), 7.42-7.49 (m, 2H). |
| 2-003 | Me | nPr | 1.04 (t, <i>J</i> = 7.2 Hz, 3H), 1.89 (br s, 2H), 2.25 (s, 3H), 2.52 (s, 3H), 4.71 (br s, 2H), 7.19-7.26 (m, 2H), 7.36 (s, 1H), 7.42-7.49 (m, 2H). |
| 2-004 | Me | nBu | 0.99 (t, <i>J</i> = 7.2 Hz, 3H), 1.42-1.54 (m, 2H), 1.83 (br s, 2H), 2.25 (s, 3H), 2.53 (s, 3H), 4.80 (br s, 2H), 7.18-7.26 (m, 2H), 7.36 (s, 1H), 7.42-7.49 (m, 2H). |
| 2-005 | Me | iBu | 0.97-0.99 (m, 6H), 2.27 (s, 3H), 2.51 (s, 3H), 2.51-2.66 (m, 1H), 3.81 (br s, 1H), 5.64 (br s, 1H), 7.20-7.24 (m, 2H), 7.39 (s, 1H), 7.42-7.48 (m, 2H). |
| 2-006 | Me | nPent | 0.92 (t, <i>J</i> = 7.2 Hz, 3H), 1.36-1.48 (m, 4H), 1.85 (br s, 2H), 2.25 (s, 3H), 2.53 (s, 3H), 4.76 (br s, 2H), 7.18-7.26 (m, 2H), 7.36 (s, 1H), 7.42-7.49 (m, 2H). |
| 2-007 | Me | nHexyl | 0.89 (t, <i>J</i> = 7.2 Hz, 3H), 1.30-1.50 (m, 6H), 1.84 (br s, 2H), 2.25 (s, 3H), 2.52 (s, 3H), 4.79 (br s, 2H), 7.17-7.26 (m, 2H), 7.35 (s, 1H), 7.42-7.49 (m, 2H). |
| 2-008 | Me | Bn | 2.24 (s, 3H), 2.38 (s, 3H), 6.27 (br s, 2H), 7.14-7.52 (m, 10H). |
| 2-009 | Et | Me | 1.23 (t, <i>J</i> = 7.8 Hz, 3H), 2.50 (s, 3H), 2.61 (q, <i>J</i> = 7.8 Hz, 2H), 4.17 (s, 3H), 7.19-7.24 (m, 2H), 7.42 (s, 1H), 7.42-7.49 (m, 2H). |
| 2-010 | Et | Et | 1.23 (t, <i>J</i> = 7.5 Hz, 3H), 1.47 (t, <i>J</i> = 7.2 Hz, 3H), 2.57 (s, 3H), 2.59 (q, <i>J</i> = 7.5 Hz, 2H), 4.92 (br s, 2H), 7.18-7.24 (m, 2H), 7.39 (s, 1H), 7.43-7.49 (m, 2H). |
| 2-011 | Et | nPr | 1.04 (t, <i>J</i> = 7.2 Hz, 3H), 1.22 (t, <i>J</i> = 7.5 Hz, 3H), 1.89 (br s, 2H), 2.54 (s, 3H), 2.59 (q, <i>J</i> = 7.5 Hz, 2H), 4.72 (br s, 2H), 7.18-7.24 (m, 2H), 7.38 (s, 1H), 7.42-7.49 (m, 2H). |
| 2-012 | Et | nBu | 0.99 (t, <i>J</i> = 7.2 Hz, 3H), 1.22 (t, <i>J</i> = 7.5 Hz, 3H), 1.42-1.54 (m, 2H), 1.83 (br s, 2H), 2.55 (s, 3H), 2.59 (q, <i>J</i> = 7.5 Hz, 2H), 4.77 (br s, 2H), 7.20-7.24 (m, 2H), 7.38 (s, 1H), 7.42-7.49 (m, 2H). |
| 2-013 | Et | Bn | 1.22 (t, <i>J</i> = 7.5 Hz, 3H), 2.40 (s, 3H), 2.57 (q, <i>J</i> = 7.5 Hz, 2H), 6.26 (br s, 2H), 7.13-7.51 (m, 10H). |

表 7 1



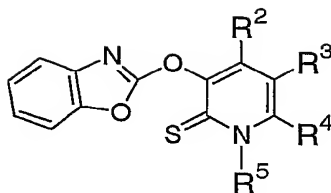
| 化合物 No. | R ^r | R ⁵ | ¹ H-NMR (CDCl ₃) |
|------------|------------------------------------|----------------|--|
| 2-014 | | Me | 2.55 (s, 3H), 4.10 (s, 3H), 6.57 (d, <i>J</i> = 7.8 Hz, 1H), 7.20-7.26 (m, 2H), 7.40-7.50 (m, 3H). |
| 2-015 | | nBu | 0.99 (t, <i>J</i> = 7.2 Hz, 3H), 1.47 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.84 (m, 2H), 2.58 (s, 3H), 4.69 (br s, 2H), 6.52 (d, <i>J</i> = 7.8 Hz, 1H), 7.20-7.26 (m, 2H), 7.30-7.50 (m, 3H). |
| 2-016 | | nBu | 0.82 (t, <i>J</i> = 7.5 Hz, 3H), 1.32 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.47-1.52 (m, 2H), 2.46 (s, 3H), 4.37 (br s, 2H), 4.80 (s, 2H), 7.06 (d, <i>J</i> = 9.0 Hz, 1H), 7.26-7.35 (m, 3H), 7.38-7.44 (m, 1H), 7.60-7.67 (m, 1H). |
| 2-017 | Ac | nBu | 0.99 (t, <i>J</i> = 7.5 Hz, 3H), 1.47 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.83 (m, 2H), 2.38 (s, 3H), 2.54 (s, 3H), 4.70 (br s, 2H), 6.44 (d, <i>J</i> = 7.8 Hz, 1H), 7.04 (d, <i>J</i> = 7.5 Hz, 1H). |
| 2-018 | H | nBu | 1.02 (t, <i>J</i> = 7.8 Hz, 3H), 1.50 (sextet, <i>J</i> = 7.8 Hz, 2H), 1.80-1.90 (m, 2H), 2.51 (s, 3H), 4.66 (br s, 2H), 6.49 (d, <i>J</i> = 8.1 Hz, 1H), 6.91 (d, <i>J</i> = 7.8 Hz, 1H), 8.44 (br s, 1H). |
| 2-019 | | nBu | 0.96 (t, <i>J</i> = 7.5 Hz, 3H), 1.41 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.70 (m, 2H), 2.43 (s, 3H), 2.52 (s, 3H), 4.61 (brs, 2H), 6.38 (d, <i>J</i> = 8.1 Hz, 1H), 7.26-7.35 (m, 3H), 7.97 (d, <i>J</i> = 8.7 Hz, 1H). |
| 2-020 | H ₃ C-SO ₂ - | nBu | 1.01 (t, <i>J</i> = 7.5 Hz, 3H), 1.49 (sextet, <i>J</i> = 7.2 Hz, 2H), 1.82 (m, 2H), 2.57 (s, 3H), 3.48 (dd, <i>J</i> = 3.0, 1.5 Hz, 3H), 4.70 (brs, 2H), 6.47 (d, <i>J</i> = 7.8 Hz, 1H), 7.31 (dd, <i>J</i> = 7.8, 1.8 Hz, 1H). |
| 2-021 | | nBu | 0.98 (t, <i>J</i> = 7.2 Hz, 3H), 1.46 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.81 (m, 2H), 2.51 (s, 3H), 4.00 (s, 2H), 4.67 (brs, 2H), 6.39 (d, <i>J</i> = 7.8 Hz, 1H), 6.98 (d, <i>J</i> = 7.8 Hz, 1H), 7.10-7.50 (m, 5H). |
| 2-022 | | nBu | 0.99 (t, <i>J</i> = 7.2 Hz, 3H), 1.47 (sextet, <i>J</i> = 7.2 Hz, 2H), 1.85 (m, 2H), 2.54 (s, 3H), 2.90-3.00 (m, 2H), 3.10-3.20 (m, 2H), 4.70 (brs, 2H), 3.10-3.20 (m, 2H), 4.70 (brs, 2H), 6.42 (d, <i>J</i> = 8.1 Hz, 1H), 6.97 (d, <i>J</i> = 8.1 Hz, 1H), 7.18-7.34 (m, 5H). |

表 7 2



| 化合物 No. | R ^r | R ⁵ | ¹ H-NMR (CDCl ₃) |
|------------|---------------------|----------------|--|
| 2-023 | | nBu | 0.92 (t, <i>J</i> = 6.9 Hz, 3H), 1.37 (m, 4H), 2.41 (s, 3H), 4.17 (brs, 2H), 4.47 (s, 2H), 6.99 (d, <i>J</i> = 9.0 Hz, 1H), 7.00-7.30 (m, 5H). |
| 2-024 | | nBu | 0.94 (t, <i>J</i> = 6.9 Hz, 3H), 1.40 (sextet, <i>J</i> = 7.8 Hz, 2H), 1.70 (m, 2H), 2.48 (s, 3H), 2.89 (s, 6H), 4.60 (br s, 2H), 6.27 (d, <i>J</i> = 8.1 Hz, 1H), 6.97 (dd, <i>J</i> = 8.1, 1.2 Hz, 1H), 7.21 (d, <i>J</i> = 7.8 Hz, 1H), 7.51 (dd, <i>J</i> = 8.1, 7.8 Hz, 1H), 7.61 (dd, <i>J</i> = 8.4, 7.8 Hz, 1H), 8.28 (dd, <i>J</i> = 7.2, 0.9 Hz, 1H), 8.61 (t, <i>J</i> = 8.4 Hz, 2H). |
| 2-025 | | nBu | 1.02 (t, <i>J</i> = 7.5 Hz, 3H), 1.50 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.80-1.85 (m, 2H), 2.51 (s, 3H), 4.67 (br s, 2H), 6.51 (dd, <i>J</i> = 5.1, 4.8 Hz, 1H), 6.57 (d, <i>J</i> = 7.8 Hz, 1H), 7.38 (d, <i>J</i> = 8.1 Hz, 1H), 7.70-7.85 (m, 2H). |
| 2-026 | nBu | nBu | 0.90-1.03 (m, 6H), 1.4-1.6 (m, 4H), 1.8-1.9 (m, 4H), 2.50 (s, 3H), 3.98 (t, <i>J</i> = 6.9 Hz, 2H), 4.76 (brs, 2H), 6.40 (d, <i>J</i> = 8.1 Hz, 1H), 6.60 (d, <i>J</i> = 7.8 Hz, 1H). |
| 2-027 | | nBu | 0.91 (t, <i>J</i> = 7.2 Hz, 3H), 1.25-1.44 (m, 4H), 1.25-1.44 (m, 4H), 2.40 (s, 3H), 3.75 (s, 3H), 4.18 (brs, 2H), 4.44 (s, 2H), 6.73 (A ₂ B ₂ -type, <i>J</i> = 8.7 Hz, 2H), 6.98 (d, <i>J</i> = 9.3 Hz, 1H), 7.09 (A ₂ B ₂ -type, <i>J</i> = 8.4 Hz, 2H), 7.25 (d, <i>J</i> = 9.0 Hz, 1H). |
| 2-028 | EtO ₂ C- | nBu | 0.99 (t, <i>J</i> = 7.2 Hz, 3H), 1.40 (t, <i>J</i> = 7.2 Hz, 3H), 1.47 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.84 (m, 2H), 2.55 (s, 3H), 4.35 (q, <i>J</i> = 7.5 Hz, 2H), 4.69 (brs, 2H), 6.45 (dd, <i>J</i> = 7.5, 0.6 Hz, 1H), 7.12 (d, <i>J</i> = 7.5 Hz, 1H). |
| 2-029 | | nBu | 0.99 (t, <i>J</i> = 7.2 Hz, 3H), 1.48 (sextet, <i>J</i> = 7.2 Hz, 2H), 1.85 (m, 2H), 2.57 (s, 3H), 4.73 (brs, 2H), 6.48 (d, <i>J</i> = 7.8 Hz, 1H), 7.18 (d, <i>J</i> = 7.5 Hz, 1H), 7.20-7.70 (m, 3H), 8.20-8.30 (m, 2H). |

表 7 3



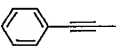
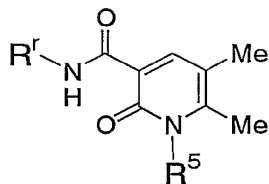
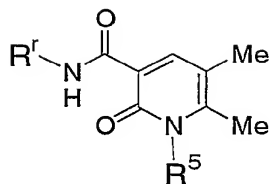
| 化合物 No. | R ² | R ³ | R ⁴ | R ⁵ | ¹ H-NMR (CDCl ₃) |
|------------|----------------------|---|----------------|----------------|---|
| 2-030 | H | H | H | iPr | 1.45 (s, 3H), 1.48 (s, 3H), 6.31-6.45 (m, 1H), 6.76 (t, <i>J</i> = 7.0 Hz, 1H), 7.03-7.29 (m, 3H), 7.43-7.29 (m, 3H), 7.43-7.54 (m, 2H), 7.74 (dd, <i>J</i> = 1.5, 7.0 Hz, 1H). |
| 2-031 | Me | H | H | nPr | 1.00 (t, <i>J</i> = 7.3 Hz, 3H), 1.83-2.02 (m, 2H), 4.48 (t, <i>J</i> = 7.7 Hz, 2H), 6.56 (d, <i>J</i> = 6.6 Hz, 1H), 7.20-7.28 (m, 2H), 7.43-7.49 (m, 2H), 7.57 (d, <i>J</i> = 6.6 Hz, 1H). |
| 2-032 | -CH ₂ OMe | H | H | nPr | 0.96 (t, <i>J</i> = 7.3 Hz, 3H), 1.35-1.47 (m, 2H), 1.81-1.91 (m, 2H), 3.43 (s, 3H), 4.48-4.56 (m, 3H), 6.89 (d, <i>J</i> = 6.7 Hz, 1H), 6.97-7.48 (m, 4H), 7.68 (d, <i>J</i> = 6.7 Hz, 1H). |
| 2-033 | H | H | H | nBu | 0.98 (t, <i>J</i> = 7.3 Hz, 3H), 1.37-1.49 (m, 2H), 1.83-1.94 (m, 2H), 4.57 (t, <i>J</i> = 7.6 Hz, 2H), 6.65-6.70 (m, 1H), 7.22-7.27 (m, 2H), 7.43-7.51 (m, 3H), 7.68 (dd, <i>J</i> = 1.5, 6.4 Hz, 1H). |
| 2-034 | Me | H | H | nBu | 0.95 (t, <i>J</i> = 7.3 Hz, 3H), 1.34-1.46 (m, 2H), 1.79-1.90 (m, 2H), 2.29 (s, 3H), 4.51 (t, <i>J</i> = 7.4 Hz, 2H), 6.55 (d, <i>J</i> = 6.6 Hz, 1H), 7.20-7.28 (m, 2H), 7.43-7.48 (m, 2H), 7.59 (d, <i>J</i> = 6.6 Hz, 1H). |
| 2-035 | H | Me | H | nBu | 0.97 (t, <i>J</i> = 7.3 Hz, 3H), 1.36-1.46 (m, 2H), 1.82-1.92 (m, 2H), 4.54 (t, <i>J</i> = 7.6 Hz, 2H), 7.19-7.27 (m, 2H), 7.40-7.52 (m, 4H). |
| 2-036 | H | Br | H | nBu | 0.99 (t, <i>J</i> = 7.5 Hz, 3H), 1.43 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.83-1.93 (m, 2H), 4.53 (t, <i>J</i> = 7.5 Hz, 2H), 7.21-7.30 (m, 2H), 7.42-7.52 (m, 2H), 7.64 (d, <i>J</i> = 2.1 Hz, 1H), 7.79 (d, <i>J</i> = 2.1 Hz, 1H). |
| 2-037 | H |  | H | nBu | 1.00 (t, <i>J</i> = 7.3 Hz, 3H), 1.45 (sextet, <i>J</i> = 7.3 Hz, 2H), 1.85-1.97 (m, 2H), 4.57 (t, <i>J</i> = 7.6 Hz, 2H), 7.22-7.28 (m, 2H), 7.34-7.44 (m, 3H), 7.44-7.52 (m, 4H), 7.61 (d, <i>J</i> = 1.8 Hz, 1H), 7.89 (d, <i>J</i> = 1.8 Hz, 1H). |

表 7 4



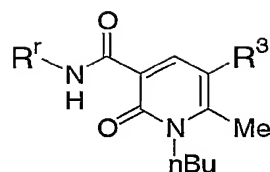
| 化合物 No. | R ^r | R ⁵ | ¹ H-NMR (CDCl ₃) |
|------------|----------------|----------------|---|
| 3-001 | | Me | 2.20 (s, 3H), 2.39 (s, 3H), 3.62 (s, 3H), 4.65 (d, <i>J</i> = 6.0 Hz, 2H), 7.21-7.38 (m, 5H), 8.37 (s, 1H), 10.28 (br s, 1H). |
| 3-002 | | Me | 2.19 (s, 3H), 2.38 (s, 3H), 2.93 (t, <i>J</i> = 7.2 Hz, 2H), 3.62 (s, 3H), 3.65-3.72 (m, 2H), 7.21-7.33 (m, 5H), 8.34 (s, 1H), 9.99 (br s, 1H). |
| 3-003 | | Et | 1.32 (t, <i>J</i> = 7.2 Hz, 3H), 2.18 (s, 3H), 2.42 (s, 3H), 4.20 (q, <i>J</i> = 7.2 Hz, 2H), 4.64 (d, <i>J</i> = 6.0 Hz, 2H), 7.24-7.38 (m, 5H), 8.35 (s, 1H), 10.30 (br s, 1H). |
| 3-004 | | Et | 1.33 (t, <i>J</i> = 7.2 Hz, 3H), 2.18 (s, 3H), 2.42 (s, 3H), 2.93 (t, <i>J</i> = 7.5 Hz, 2H), 3.64-3.71 (m, 2H), 4.21 (q, <i>J</i> = 7.2 Hz, 2H), 7.18-7.33 (m, 5H), 8.32 (s, 1H), 10.03 (br s, 1H). |
| 3-005 | | nPr | 1.03 (t, <i>J</i> = 7.8 Hz, 3H), 1.65-1.78 (m, 2H), 2.19 (s, 3H), 2.42 (s, 3H), 4.07 (t, <i>J</i> = 8.1 Hz, 2H), 4.65 (d, <i>J</i> = 6.0 Hz, 2H), 7.24-7.38 (m, 5H), 8.36 (s, 1H), 10.30 (br s, 1H). |
| 3-006 | | nPr | 1.05 (t, <i>J</i> = 7.5 Hz, 3H), 1.67-1.80 (m, 2H), 2.19 (s, 3H), 2.42 (s, 3H), 2.92-2.97 (m, 2H), 3.64-3.72 (m, 2H), 4.09 (t, <i>J</i> = 7.8 Hz, 2H), 7.20-7.35 (m, 5H), 8.33 (s, 1H), 10.05 (br s, 1H). |
| 3-007 | | iPr | 1.60 (s, 3H), 1.63 (s, 3H), 2.17 (s, 3H), 2.40 (s, 3H), 4.64 (d, <i>J</i> = 6.0 Hz, 2H), 7.24-7.34 (m, 5H), 8.31 (s, 1H), 10.31 (br s, 1H). |
| 3-008 | | iPr | 1.62 (s, 3H), 1.64 (s, 3H), 2.17 (s, 3H), 2.40 (s, 3H), 2.93 (d, <i>J</i> = 7.8 Hz, 2H), 3.62-3.69 (m, 2H), 4.64 (br s, 1H), 7.18-7.33 (m, 5H), 8.28 (s, 1H), 10.04 (br s, 1H). |
| 3-009 | | nBu | 0.98 (t, <i>J</i> = 7.2 Hz, 3H), 1.38-1.51 (m, 2H), 1.61-1.71 (m, 2H), 2.18 (s, 3H), 2.41 (s, 3H), 4.10 (t, <i>J</i> = 8.1 Hz, 2H), 4.64 (d, <i>J</i> = 6.0 Hz, 2H), 7.21-7.38 (m, 5H), 8.35 (s, 1H), 10.30 (br s, 1H). |
| 3-010 | | nBu | 1.00 (t, <i>J</i> = 7.2 Hz, 3H), 1.40 (m, 2H), 1.61-1.72 (m, 2H), 2.93 (t, <i>J</i> = 7.2 Hz, 2H), 3.63-3.70 (m, 2H), 4.11 (t, <i>J</i> = 7.8 Hz, 2H), 7.18-7.32 (m, 5H), 8.32 (s, 1H), 10.03 (br s, 1H). |

表 7 5



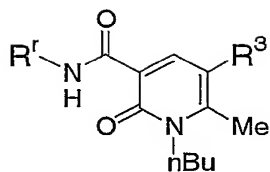
| 化合物 No. | R ^r | R ⁵ | ¹ H-NMR (CDCl ₃) |
|------------|----------------|----------------|--|
| 3-011 | | nHexyl | 0.89 (t, <i>J</i> = 7.2 Hz, 3H), 1.30-1.50 (m, 6H), 1.60-1.75 (m, 2H), 2.18 (s, 3H), 2.41 (s, 3H), 4.09 (t, <i>J</i> = 7.8 Hz, 2H), 4.64 (d, <i>J</i> = 5.7 Hz, 2H), 7.23-7.38 (m, 5H), 8.35 (s, 1H). |
| 3-012 | | nHexyl | 0.91 (t, <i>J</i> = 6.9 Hz, 3H), 1.32-1.45 (m, 6H), 1.63-1.70 (m, 2H), 2.18 (s, 3H), 2.40 (s, 3H), 2.93 (t, <i>J</i> = 7.5 Hz, 2H), 3.63-3.70 (m, 2H), 4.10 (t, <i>J</i> = 7.8 Hz, 2H), 7.18-7.32 (m, 5H), 8.31 (s, 1H), 10.04 (br s, 1H). |
| 3-013 | | Bn | 2.19 (s, 3H), 2.31 (s, 3H), 4.64 (d, <i>J</i> = 5.7 Hz, 2H), 5.44 (br s, 2H), 7.07-7.38 (m, 10H), 8.44 (s, 1H), 10.24 (br s, 1H). |
| 3-014 | | Bn | 2.18 (s, 3H), 2.31 (s, 3H), 2.93 (t, <i>J</i> = 7.5 Hz, 2H), 3.64-3.71 (m, 2H), 5.45 (br s, 2H), 7.08-7.36 (m, 10H), 8.41 (s, 1H), 9.98 (br s, 1H). |
| 3-015 | | Ph | 2.00 (s, 3H), 2.22 (s, 3H), 4.58 (d, <i>J</i> = 5.7 Hz, 2H), 7.15-7.32 (m, 7H), 7.49-7.58 (m, 3H), 8.49 (s, 1H), 10.02 (br s, 1H). |
| 3-016 | | Ph | 2.00 (s, 3H), 2.22 (s, 3H), 2.88 (t, <i>J</i> = 7.8 Hz, 2H), 3.59-3.66 (m, 2H), 7.16-7.29 (m, 7H), 7.51-7.61 (m, 3H), 8.46 (s, 1H), 9.82 (br s, 1H). |

表 7 6



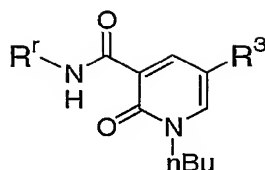
| 化合物 No. | R ^r | R ³ | ¹ H-NMR (CDCl ₃) |
|------------|----------------|----------------|---|
| 3-033 | | nBu | 0.93 (t, <i>J</i> = 7.2 Hz, 3H), 0.98 (t, <i>J</i> = 7.2 Hz, 3H), 1.32-1.51 (m, 6H), 1.61-1.69 (m, 2H), 2.41 (s, 3H), 2.48 (t, <i>J</i> = 7.8 Hz, 2H), 4.09 (t, <i>J</i> = 7.8 Hz, 2H), 4.64 (d, <i>J</i> = 6.0 Hz, 2H), 7.23-7.38 (m, 5H), 8.35 (s, 1H), 10.30 (br s, 1H). |
| 3-034 | | nBu | 0.93 (t, <i>J</i> = 7.2 Hz, 3H), 1.00 (t, <i>J</i> = 7.2 Hz, 3H), 1.30-1.54 (m, 6H), 1.63-1.72 (m, 2H), 2.42 (s, 3H), 2.48 (t, <i>J</i> = 7.8 Hz, 2H), 2.93 (m, 2H), 3.62-3.70 (m, 2H), 4.10 (t, <i>J</i> = 7.8 Hz, 2H), 7.16-7.32 (m, 5H), 8.32 (s, 1H), 10.04 (br s, 1H). |
| 3-035 | | nPentyl | 0.90 (t, <i>J</i> = 6.9 Hz, 3H), 0.98 (t, <i>J</i> = 7.2 Hz, 3H), 1.30-1.53 (m, 8H), 1.62-1.69 (m, 2H), 2.47 (s, 3H), 2.48 (t, <i>J</i> = 7.5 Hz, 2H), 4.09 (t, <i>J</i> = 7.8 Hz, 2H), 4.64 (d, <i>J</i> = 5.7 Hz, 2H), 7.23-7.38 (m, 5H), 8.35 (s, 1H), 10.31 (br s, 1H). |
| 3-036 | | nPentyl | 0.90 (t, <i>J</i> = 6.9 Hz, 3H), 1.00 (t, <i>J</i> = 7.2 Hz, 3H), 1.28-1.39 (m, 4H), 1.40-1.55 (m, 4H), 1.62-1.72 (m, 2H), 2.42 (s, 3H), 2.47 (t, <i>J</i> = 7.5 Hz, 2H), 2.93 (t, <i>J</i> = 7.2 Hz, 2H), 3.63-3.70 (m, 2H), 4.10 (t, <i>J</i> = 7.8 Hz, 2H), 7.20-7.32 (m, 5H), 8.32 (s, 1H), 10.04 (br s, 1H). |
| 3-037 | | I | 0.98 (t, <i>J</i> = 7.3 Hz, 3H), 1.38-1.50 (m, 2H), 1.61-1.71 (m, 2H), 2.71 (s, 3H), 4.16 (t, <i>J</i> = 7.9 Hz, 2H), 4.63 (d, <i>J</i> = 5.8 Hz, 2H), 7.22-7.37 (m, 5H), 8.78 (s, 1H), 10.4 (br s, 1H). |
| 3-038 | | I | 1.00 (t, <i>J</i> = 7.3 Hz, 3H), 1.39-1.51 (m, 2H), 1.59 (s, 3H), 1.61-1.71 (m, 2H), 2.71 (s, 3H), 2.92 (t, <i>J</i> = 7.6 Hz, 2H), 3.62-3.69 (m, 2H), 4.17 (t, <i>J</i> = 7.9 Hz, 2H), 7.19-7.33 (m, 5H), 8.74 (s, 1H), 9.77 (br s, 1H). |
| 3-039 | | | 1.00 (t, <i>J</i> = 7.3 Hz, 3H), 1.41-1.53 (m, 2H), 1.68-1.78 (m, 2H), 4.15 (t, <i>J</i> = 7.6 Hz, 2H), 4.65 (d, <i>J</i> = 5.8 Hz, 2H), 7.22-7.45 (m, 10H), 8.46 (s, 1H), 10.25 (br s, 1H). |
| 3-040 | | | 1.02 (t, <i>J</i> = 7.3 Hz, 3H), 1.43-1.55 (m, 2H), 1.69-1.79 (m, 2H), 2.41 (s, 3H), 2.94 (t, <i>J</i> = 7.9 Hz, 2H), 3.65-3.72 (m, 2H), 4.16 (t, <i>J</i> = 7.6 Hz, 2H), 7.19-7.45 (m, 10H), 8.43 (s, 1H), 9.98 (br s, 1H). |

表 7 7



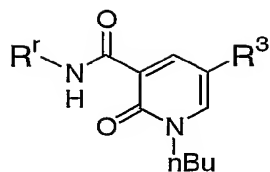
| 化合物 No. | R ^r | R ^s | ¹ H-NMR (CDCl ₃) |
|------------|----------------|-----------------|--|
| 3-044 | | CF ₃ | 1.02 (t, <i>J</i> = 6.7 Hz, 3H), 1.42-1.54 (m, 2H), 1.66-1.74 (m, 2H), 2.61 (s, 3H), 2.93 (t, <i>J</i> = 7.3 Hz, 2H), 3.64-3.69 (m, 2H), 4.14 (t, <i>J</i> = 7.9 Hz, 2H), 7.20-7.83 (m, 5H), 8.69 (s, 1H), 9.61 (brs, 1H). |

表 7 8



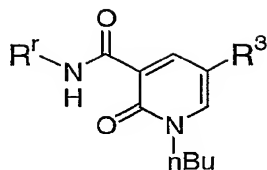
| 化合物 No. | R ^r | R ^s | ¹ H-NMR (CDCl ₃) |
|------------|----------------|----------------|---|
| 3-061 | n-Hexyl | | 0.86-0.91 (m, 6H), 0.95 (t, <i>J</i> = 7.3 Hz, 3H), 1.26-1.47 (m, 16H), 1.54-1.65 (m, 4H), 1.73-1.83 (m, 2H), 3.38-3.45 (m, 4H), 4.07 (t, <i>J</i> = 7.3 Hz, 2H), 6.72 (t, <i>J</i> = 5.5 Hz, 1H), 8.40 (d, <i>J</i> = 2.7 Hz, 1H), 8.83 (d, <i>J</i> = 2.7 Hz, 1H), 9.69 (t, <i>J</i> = 5.5 Hz, 1H). |
| 3-062 | | | 1.02 (t, <i>J</i> = 7.3 Hz, 3H), 1.33-1.45 (m, 2H), 1.72-1.82 (m, 2H), 4.06 (t, <i>J</i> = 7.6 Hz, 2H), 4.58 (d, <i>J</i> = 5.5 Hz, 4H), 6.81 (br s, 1H), 7.24-7.36 (m, 10H), 7.42 (d, <i>J</i> = 2.7 Hz, 1H), 8.78 (d, <i>J</i> = 2.7 Hz, 1H), 10.00 (br s, 1H). |
| 3-063 | | | 0.97 (t, <i>J</i> = 7.3 Hz, 3H), 1.33-1.46 (m, 2H), 1.72-1.82 (m, 2H), 2.88-2.94 (m, 4H), 3.63-3.72 (m, 4H), 4.06 (t, <i>J</i> = 7.6 Hz, 2H), 7.20-7.34 (m, 10H), 8.37 (d, <i>J</i> = 2.7 Hz, 1H), 8.65 (d, <i>J</i> = 2.7 Hz, 1H), 9.52 (br s, 1H). |
| 3-064 | | | 0.91-0.96 (m, 6H), 0.93 (t, <i>J</i> = 7.3 Hz, 3H), 1.32-1.44 (m, 4H), 1.54-1.65 (m, 6H), 1.71-1.81 (m, 2H), 3.38 (br s, 4H), 4.02 (t, <i>J</i> = 7.3 Hz, 2H), 4.64 (d, <i>J</i> = 5.8 Hz, 2H), 7.23-7.39 (m, 5H), 7.85 (d, <i>J</i> = 2.7 Hz, 1H), 8.58 (d, <i>J</i> = 2.7 Hz, 1H), 10.04 (t, <i>J</i> = 5.5 Hz, 1H). |
| 3-065 | | | 0.96 (t, <i>J</i> = 7.3 Hz, 3H), 1.15-1.49 (m, 6H), 1.64-1.81 (m, 6H), 1.96-2.05 (m, 2H), 3.87-3.99 (m, 1H), 4.05 (t, <i>J</i> = 7.3 Hz, 2H), 4.64 (d, <i>J</i> = 5.8 Hz, 2H), 6.10 (d, <i>J</i> = 7.9 Hz, 2H), 6.92-7.38 (m, 5H), 8.38 (d, <i>J</i> = 2.7 Hz, 1H), 8.72 (d, <i>J</i> = 2.7 Hz, 1H), 10.05 (t, <i>J</i> = 5.8 Hz, 1H). |
| 3-066 | | | 0.89 (t, <i>J</i> = 6.7 Hz, 3H), 0.97 (t, <i>J</i> = 7.3 Hz, 3H), 1.27-1.45 (m, 8H), 1.54-1.63 (m, 2H), 1.73-1.82 (m, 2H), 2.93 (t, <i>J</i> = 7.6 Hz, 2H), 3.38-3.45 (m, 2H), 3.65-3.72 (m, 2H), 4.06 (t, <i>J</i> = 7.6 Hz, 2H), 6.44 (t, <i>J</i> = 5.5 Hz, 1H), 7.20-7.34 (m, 5H), 8.39 (d, <i>J</i> = 2.7 Hz, 1H), 8.74 (d, <i>J</i> = 2.7 Hz, 1H), 9.78 (t, <i>J</i> = 5.5 Hz, 1H). |

表 7 9



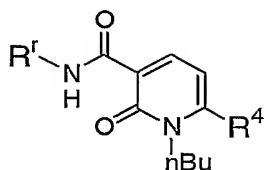
| 化合物 No. | R ^r | R ^s | ¹ H-NMR (CDCl ₃) |
|------------|----------------|-----------------|--|
| 3-067 | | I | 0.96 (t, <i>J</i> = 7.3 Hz, 3H), 1.31-1.44 (m, 2H), 1.68-1.78 (m, 2H), 3.95 (t, <i>J</i> = 7.3 Hz, 2H), 4.62 (d, <i>J</i> = 7.3 Hz, 2H), 7.23-7.36 (m, 5H), 7.70 (d, <i>J</i> = 2.6 Hz, 1H), 8.67 (d, <i>J</i> = 2.6 Hz, 1H), 10.03 (br s, 1H). |
| 3-068 | | | 0.98 (t, <i>J</i> = 7.3 Hz, 3H), 1.36-1.48 (m, 2H), 1.75-1.85 (m, 2H), 4.08 (t, <i>J</i> = 7.6 Hz, 2H), 4.67 (d, <i>J</i> = 5.8 Hz, 2H), 7.22-7.50 (m, 10H), 7.69 (d, <i>J</i> = 2.7 Hz, 1H), 8.87 (d, <i>J</i> = 2.7 Hz, 1H), 10.25 (br s, 1H). |
| 3-069 | | | 0.98 (t, <i>J</i> = 7.6 Hz, 3H), 1.34-1.46 (m, 2H), 1.72-1.82 (m, 2H), 4.01 (t, <i>J</i> = 7.6 Hz, 2H), 4.65 (d, <i>J</i> = 5.8 Hz, 2H), 7.23-7.40 (m, 8H), 7.45-7.51 (m, 2H), 7.73 (d, <i>J</i> = 2.7 Hz, 1H), 8.66 (d, <i>J</i> = 2.7 Hz, 1H), 10.03 (t, <i>J</i> = 5.8 Hz, 1H). |
| 3-070 | nBuO | H | 0.95 (t, <i>J</i> = 7.5 Hz, 3H), 1.38 (sextet, <i>J</i> = 7.8 Hz, 2H), 1.73-1.79 (m, 2H), 3.90 (s, 3H), 3.98 (t, <i>J</i> = 7.5 Hz, 2H), 6.24 (d, <i>J</i> = 6.9 Hz, 1H), 7.53 (dd, <i>J</i> = 6.7, 2.1 Hz, 1H), 8.14 (dd, <i>J</i> = 7.5, 2.4 Hz, 1H). |
| 3-071 | | H | 0.95 (t, <i>J</i> = 6.9 Hz, 3H), 1.36 (sextet, <i>J</i> = 7.8 Hz, 2H), 1.66-1.80 (m, 2H), 3.96 (t, <i>J</i> = 7.2 Hz, 2H), 4.60 (d, <i>J</i> = 6.0 Hz, 2H), 6.86 (t, <i>J</i> = 7.5 Hz, 1H), 7.20-7.40 (m, 5H), 7.46 (dd, <i>J</i> = 6.3, 2.1 Hz, 1H), 8.47 (dd, <i>J</i> = 7.2, 2.4 Hz, 1H). |
| 3-072 | | CF ₃ | 0.99 (t, <i>J</i> = 7.3 Hz, 3H), 1.34-1.47 (m, 2H), 1.72-1.82 (m, 2H), 2.93 (t, <i>J</i> = 7.3 Hz, 2H), 3.66-3.73 (m, 2H), 7.20-7.34 (m, 5H), 7.83 (m, 1H), 8.69 (d, <i>J</i> = 2.7 Hz, 1H), 9.62 (br s, 1H). |
| 3-073 | | | 0.99 (t, <i>J</i> = 7.3 Hz, 3H), 1.37-1.49 (m, 2H), 2.95 (t, <i>J</i> = 7.3 Hz, 2H), 3.66-3.73 (m, 2H), 4.07 (t, <i>J</i> = 7.3 Hz, 2H), 7.19-7.31 (m, 6H), 7.34 (d, <i>J</i> = 2.4 Hz, 1H), 7.42 (d, <i>J</i> = 8.5 Hz, 1H), 7.65 (d, <i>J</i> = 2.7 Hz, 1H), 8.63 (dd, <i>J</i> = 2.7, 0.6 Hz, 1H), 9.89 (t, <i>J</i> = 5.8 Hz, 1H). |

表 8 0



| 化合物 No. | R ^r | R ^s | ¹ H-NMR (CDCl ₃) |
|------------|----------------|----------------|--|
| 3-074 | | | 1.00 (t, <i>J</i> = 7.3 Hz, 3H), 1.38-1.50 (m, 2H), 1.70-1.87 (m, 2H), 2.97 (t, <i>J</i> = 7.3 Hz, 2H), 3.69-3.76 (m, 2H), 4.09 (t, <i>J</i> = 7.3 Hz, 2H), 6.58 (brs, 1H), 7.20-7.34 (m, 6H), 7.44-7.47 (m, 2H), 8.63 (s, 1H), 8.89 (d, <i>J</i> = 2.4 Hz, 1H), 10.11 (t, <i>J</i> = 5.8 Hz, 1H). |

表 8 1



| 化合物 No. | R ^r | R ⁴ | ¹ H-NMR (CDCl ₃) |
|------------|----------------|----------------|---|
| 3-081 | | Me | 0.98 (t, <i>J</i> = 7.2 Hz, 3H), 1.43 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.60-1.70 (m, 2H), 2.46 (s, 3H), 4.05 (t, <i>J</i> = 8.1 Hz, 2H), 4.27 (dd, <i>J</i> = 7.2, 6.6 Hz, 1H), 4.64 (d, <i>J</i> = 5.7 Hz, 2H), 7.20-7.40 (m, 5H), 8.41 (d, <i>J</i> = 7.5 Hz, 1H), 10.2 (br s, 1H). |
| 3-082 | | nPentyl | 0.93 (t, <i>J</i> = 7.2 Hz, 3H), 0.98 (t, <i>J</i> = 7.2 Hz, 3H), 1.37-1.50 (m, 6H), 1.62-1.70 (m, 4H), 2.67 (t, <i>J</i> = 7.8 Hz, 2H), 4.05 (t, <i>J</i> = 7.8 Hz, 2H), 4.64 (d, <i>J</i> = 6.0 Hz, 2H), 6.27 (d, <i>J</i> = 7.5 Hz, 1H), 7.20-7.40 (m, 5H), 8.44 (d, <i>J</i> = 7.5 Hz, 1H), 10.21 (br s, 1H). |
| 3-083 | | nPentyl | 0.93 (t, <i>J</i> = 6.9 Hz, 3H), 1.00 (t, <i>J</i> = 7.2 Hz, 3H), 1.38-1.49 (m, 6H), 1.63-1.70 (m, 4H), 2.66 (t, <i>J</i> = 7.8 Hz, 2H), 2.93 (t, <i>J</i> = 7.5 Hz, 2H), 3.63-3.68 (m, 2H), 4.06 (t, <i>J</i> = 7.8 Hz, 2H), 6.27 (d, <i>J</i> = 7.5 Hz, 1H), 7.17-7.32 (m, 5H), 8.40 (d, <i>J</i> = 7.5 Hz, 1H), 9.94 (br s, 1H). |
| 3-084 | | nHexyl | 0.91 (t, <i>J</i> = 7.2 Hz, 3H), 0.98 (t, <i>J</i> = 7.2 Hz, 3H), 1.30-1.50 (m, 8H), 1.60-1.72 (m, 4H), 2.67 (t, <i>J</i> = 7.8 Hz, 2H), 4.05 (t, <i>J</i> = 8.1 Hz, 2H), 4.64 (d, <i>J</i> = 5.7 Hz, 2H), 6.28 (d, <i>J</i> = 7.8 Hz, 1H), 7.20-7.40 (m, 5H), 8.44 (d, <i>J</i> = 7.8 Hz, 1H), 10.21 (br s, 1H). |
| 3-085 | | nHexyl | 0.91 (t, <i>J</i> = 7.2 Hz, 3H), 1.00 (t, <i>J</i> = 7.2 Hz, 3H), 1.31-1.49 (m, 8H), 1.61-1.71 (m, 4H), 2.67 (t, <i>J</i> = 7.8 Hz, 2H), 2.93 (t, <i>J</i> = 7.2 Hz, 2H), 3.63-3.70 (m, 2H), 4.06 (t, <i>J</i> = 7.8 Hz, 2H), 6.27 (d, <i>J</i> = 7.8 Hz, 1H), 7.18-7.33 (m, 5H), 8.41 (d, <i>J</i> = 7.8 Hz, 1H), 9.94 (t, <i>J</i> = 5.1 Hz, 1H). |

表 8 2

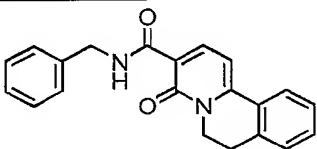
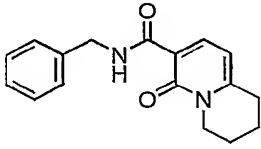
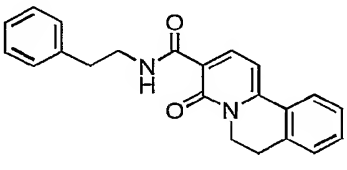
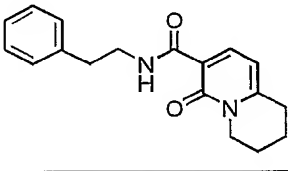
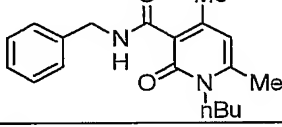
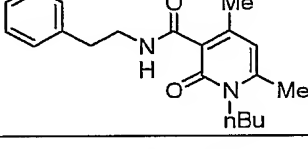
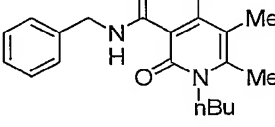
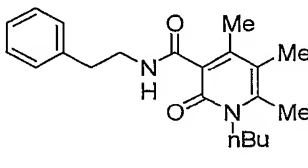
| 化合物 No. | 構造 | ¹ H-NMR (CDCl ₃) |
|------------|---|---|
| 3-101 |  | 3.03 (t, <i>J</i> = 6.4 Hz, 2H), 4.35 (t, <i>J</i> = 6.4 Hz, 2H), 4.68 (d, <i>J</i> = 5.8 Hz, 2H), 6.94 (d, <i>J</i> = 7.9 Hz, 1H), 7.23-7.49 (m, 8H), 7.81 (d, <i>J</i> = 7.3 Hz, 1H), 8.63 (d, <i>J</i> = 7.9 Hz, 1H), 10.22 (br s, 1H). |
| 3-102 |  | 1.79-1.88 (m, 2H), 1.95-2.03 (m, 2H), 2.88 (t, <i>J</i> = 6.4 Hz, 2H), 4.04 (t, <i>J</i> = 6.1 Hz, 2H), 4.65 (d, <i>J</i> = 5.8 Hz, 2H), 6.26 (d, <i>J</i> = 7.3 Hz, 1H), 7.20-7.38 (m, 5H), 8.46 (d, <i>J</i> = 7.3 Hz, 1H), 10.19 (br s, 1H). |
| 3-103 |  | 2.97 (t, <i>J</i> = 7.3 Hz, 2H), 3.04 (t, <i>J</i> = 6.4 Hz, 2H), 3.68-3.75 (m, 2H), 4.35 (t, <i>J</i> = 6.4 Hz, 2H), 6.92 (d, <i>J</i> = 7.9 Hz, 1H), 7.19-7.35 (m, 5H), 7.37-7.43 (m, 3H), 7.80 (dd, <i>J</i> = 1.5, 7.3 Hz, 1H), 8.59 (d, <i>J</i> = 7.9 Hz, 1H), 9.93 (br s, 1H). |
| 3-104 |  | 1.79-1.88 (m, 2H), 1.95-2.04 (m, 2H), 2.87 (t, <i>J</i> = 6.4 Hz, 2H), 2.93 (t, <i>J</i> = 7.3 Hz, 2H), 3.65-3.72 (m, 2H), 4.04 (t, <i>J</i> = 6.4 Hz, 2H), 6.24 (d, <i>J</i> = 7.3 Hz, 1H), 7.18-7.33 (m, 5H), 8.42 (d, <i>J</i> = 7.3 Hz, 1H), 9.90 (br s, 1H). |
| 3-105 |  | 0.97 (t, <i>J</i> = 7.5 Hz, 3H), 1.42 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.60-1.70 (m, 2H), 2.39 (s, 3H), 2.63 (s, 3H), 3.91 (t, <i>J</i> = 7.9 Hz, 2H), 4.60 (s, 2H), 6.05 (s, 1H), 7.20-7.40 (m, 5H). |
| 3-106 |  | 0.98 (t, <i>J</i> = 7.5 Hz, 3H), 1.43 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.60-1.72 (m, 2H), 2.39 (s, 3H), 2.61 (s, 3H), 2.93 (t-like, 2H), 3.63 (t-like, 2H), 4.00 (t, <i>J</i> = 7.9 Hz, 2H), 6.04 (s, 1H), 7.17-7.33 (m, 5H). |
| 3-107 |  | 0.97 (t, <i>J</i> = 7.5 Hz, 3H), 1.42 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.58-1.72 (m, 2H), 2.08 (s, 3H), 2.41 (s, 3H), 2.52 (s, 3H), 4.08 (t, <i>J</i> = 7.5 Hz, 2H), 4.62 (s, 2H), 7.20-7.42 (m, 5H), 9.02 (br s, 1H). |
| 3-108 |  | 0.98 (t, <i>J</i> = 7.5 Hz, 3H), 1.43 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.58-1.72 (m, 2H), 2.07 (s, 3H), 2.40 (s, 3H), 2.44 (s, 3H), 2.93 (t, <i>J</i> = 7.5 Hz, 2H), 3.67 (t, <i>J</i> = 7.5 Hz, 2H), 4.07 (t, <i>J</i> = 7.8 Hz, 2H), 7.16-7.34 (m, 5H), 8.47 (br s, 1H). |

表 8 3

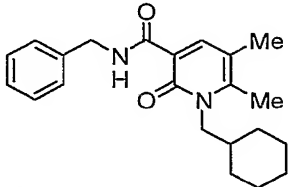
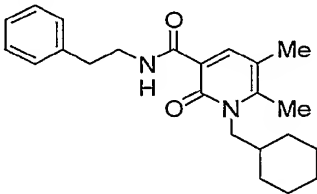
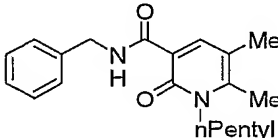
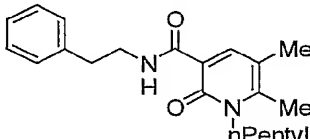
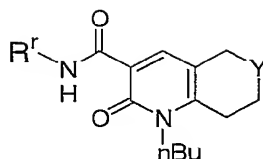
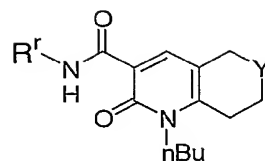
| 化合物 No. | 構造 | $^1\text{H-NMR}$ (CDCl_3) |
|------------|--|---|
| 3-109 |  | 1.00-1.28 (m, 4H), 1.56-1.90 (m, 7H), 2.18 (s, 3H), 2.39 (s, 3H), 4.00 (br s, 2H), 4.64 (d, $J = 6.0$ Hz, 2H), 7.20-7.40 (m, 5H), 8.35 (s, 1H), 10.3 (br s, 1H). |
| 3-110 |  | 1.00-1.30 (m, 4H), 1.58-1.90 (m, 7H), 2.93 (t, $J = 7.5$ Hz, 2H), 3.62-3.69 (m, 2H), 4.01 (br s, 2H), 7.18-7.35 (m, 5H), 8.32 (s, 1H), 10.3 (br s, 1H). |
| 3-111 |  | 0.92 (t, $J = 7.2$ Hz, 3H), 1.37-1.42 (m, 4H), 1.60-1.75 (m, 2H), 2.18 (s, 3H), 2.40 (s, 3H), 4.08 (t, $J = 8.1$ Hz, 2H), 4.64 (d, $J = 5.7$ Hz, 2H), 7.20-7.40 (m, 5H), 8.35 (s, 1H), 10.3 (br s, 1H). |
| 3-112 |  | 0.94 (t, $J = 7.2$ Hz, 3H), 1.38-1.42 (m, 4H), 1.60-1.75 (m, 2H), 2.18 (s, 3H), 2.40 (s, 3H), 2.93 (t, $J = 7.8$ Hz, 2H), 3.60-3.70 (m, 2H), 4.10 (t, $J = 7.8$ Hz, 2H), 7.20-7.35 (m, 5H), 8.31 (s, 1H), 10.03 (br s, 1H). |

表 8 4



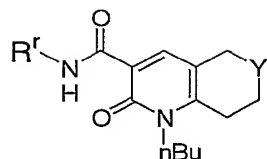
| 化合物 No. | R ^r | Y | ¹ H-NMR (CDCl ₃) |
|------------|----------------|--------------------|--|
| 4-001 | | -CH ₂ - | 0.97 (t, <i>J</i> = 7.5 Hz, 3H), 1.43 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.62 (quint, <i>J</i> = 7.5 Hz, 2H), 1.74 (quint, <i>J</i> = 6.0 Hz, 2H), 1.88 (quint, <i>J</i> = 6.0 Hz, 2H), 2.62 (t, <i>J</i> = 6.0 Hz, 2H), 2.74 (t, <i>J</i> = 6.0 Hz, 2H), 4.03 (t, <i>J</i> = 7.8 Hz, 2H), 4.64 (d, <i>J</i> = 6.0 Hz, 2H), 7.23-7.38 (m, 5H), 8.28 (s, 1H), 10.32 (br t, <i>J</i> = 6.0 Hz, 1H). |
| 4-002 | | -CH ₂ - | 0.99 (t, <i>J</i> = 7.5 Hz, 3H), 1.45 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.63 (quint, <i>J</i> = 7.5 Hz, 2H), 1.74 (quint, <i>J</i> = 6.0 Hz, 2H), 1.88 (quint, <i>J</i> = 6.0 Hz, 2H), 2.62 (t, <i>J</i> = 6.0 Hz, 2H), 2.74 (t, <i>J</i> = 6.0 Hz, 2H), 2.93 (t, <i>J</i> = 7.8 Hz, 2H), 3.66 (dt, <i>J</i> = 9.0 Hz, 6.0 Hz, 2H), 4.03 (t, <i>J</i> = 7.8 Hz, 2H), 7.20-7.33 (m, 5H), 8.25 (s, 1H), 10.05 (br t, <i>J</i> = 6.0 Hz, 1H). |
| 4-003 | | -CH ₂ - | 0.99 (t, <i>J</i> = 7.5 Hz, 3H), 1.45 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.66 (quint, <i>J</i> = 7.5 Hz, 2H), 1.73 (quint, <i>J</i> = 6.0 Hz, 2H), 1.87 (quint, <i>J</i> = 6.0 Hz, 2H), 2.61 (t, <i>J</i> = 6.0 Hz, 2H), 2.73 (t, <i>J</i> = 6.0 Hz, 2H), 2.82 (t, <i>J</i> = 7.8 Hz, 2H), 3.60 (dt, <i>J</i> = 9.0 Hz, 6.0 Hz, 2H), 4.03 (t, <i>J</i> = 7.5 Hz, 2H), 6.65 (dd, <i>J</i> = 6.3 Hz, 2.1 Hz, 2H), 7.05 (dd, <i>J</i> = 6.3 Hz, 2.1 Hz, 2H), 8.23 (s, 1H), 10.01 (br t, <i>J</i> = 6.0 Hz, 1H). |
| 4-004 | | -CH ₂ - | 0.99 (t, <i>J</i> = 7.2 Hz, 3H), 1.44 (sextet, <i>J</i> = 7.2 Hz, 2H), 1.65 (quint, <i>J</i> = 7.2 Hz, 2H), 1.74 (quint, <i>J</i> = 6.0 Hz, 2H), 1.88 (quint, <i>J</i> = 6.0 Hz, 2H), 2.64 (t, <i>J</i> = 6.0 Hz, 2H), 2.74 (t, <i>J</i> = 6.0 Hz, 2H), 2.94 (t, <i>J</i> = 7.5 Hz, 2H), 3.70 (q, <i>J</i> = 6.9 Hz, 2H), 4.03 (t, <i>J</i> = 7.8 Hz, 2H), 7.20 (d, <i>J</i> = 4.8 Hz, 2H), 8.22 (s, 1H), 8.51 (br s, 2H), 10.10 (br t, <i>J</i> = 6.0 Hz, 1H). |
| 4-005 | | -CH ₂ - | 1.01 (t, <i>J</i> = 7.5 Hz, 3H), 1.44 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.70 (quint, <i>J</i> = 7.5 Hz, 2H), 1.76 (quint, <i>J</i> = 6.0 Hz, 2H), 1.91 (quint, <i>J</i> = 6.0 Hz, 2H), 2.66 (t, <i>J</i> = 6.0 Hz, 2H), 2.78 (t, <i>J</i> = 6.0 Hz, 2H), 4.09 (t, <i>J</i> = 7.8 Hz, 2H), 7.09 (t, <i>J</i> = 7.5 Hz, 1H), 7.34 (t, <i>J</i> = 7.5 Hz, 2H), 7.77 (d, <i>J</i> = 7.5 Hz, 2H), 8.34 (s, 1H), 12.18 (br s, 1H). |

表 8 5



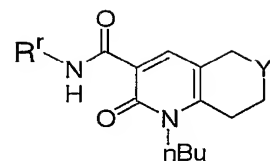
| 化合物 No. | R ^r | Y | ¹ H-NMR (CDCl ₃) |
|------------|----------------|--------------------|--|
| 4-006 | | -CH ₂ - | 0.98 (t, <i>J</i> = 7.5 Hz, 3H), 1.43 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.65 (quint, <i>J</i> = 7.5 Hz, 2H), 1.74 (quint, <i>J</i> = 6.0 Hz, 2H), 1.88 (quint, <i>J</i> = 6.0 Hz, 2H), 2.62 (t, <i>J</i> = 6.0 Hz, 2H), 2.74 (t, <i>J</i> = 6.0 Hz, 2H), 4.02 (t, <i>J</i> = 7.8 Hz, 2H), 4.53 (d, <i>J</i> = 6.0 Hz, 2H), 5.02 (s, 2H), 6.74 (d, <i>J</i> = 7.8 Hz, 1H), 6.81 (dd, <i>J</i> = 7.8 Hz, 1.8 Hz, 1H), 6.86 (d, <i>J</i> = 1.8 Hz, 1H), 8.27 (s, 1H), 10.26 (br t, <i>J</i> = 6.0 Hz, 1H). |
| 4-007 | | -CH ₂ - | 0.98 (t, <i>J</i> = 7.5 Hz, 3H), 1.44 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.63 (quint, <i>J</i> = 7.5 Hz, 2H), 1.73 (quint, <i>J</i> = 6.0 Hz, 2H), 1.88 (quint, <i>J</i> = 6.0 Hz, 2H), 2.62 (t, <i>J</i> = 6.0 Hz, 2H), 2.74 (t, <i>J</i> = 6.0 Hz, 2H), 4.03 (t, <i>J</i> = 7.8 Hz, 2H), 4.62 (d, <i>J</i> = 5.4 Hz, 2H), 6.25 (dd, <i>J</i> = 3.0 Hz, 0.9 Hz, 1H), 6.28-6.31 (m, 1H), 7.35 (d, <i>J</i> = 0.9 Hz, 1H), 8.26 (s, 1H), 10.25 (br t, <i>J</i> = 5.4 Hz, 1H). |

表 8 6



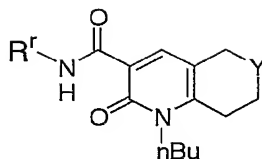
| 化合物 No. | R ^f | Y | ¹ H-NMR (CDCl ₃) |
|------------|----------------|--------------------|--|
| 4-008 | | -CH ₂ - | 0.98 (t, <i>J</i> = 7.5 Hz, 3H), 1.43 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.62 (quint, <i>J</i> = 7.5 Hz, 2H), 1.74 (quint, <i>J</i> = 6.0 Hz, 2H), 1.88 (quint, <i>J</i> = 6.0 Hz, 2H), 2.62 (t, <i>J</i> = 6.0 Hz, 2H), 2.74 (t, <i>J</i> = 6.0 Hz, 2H), 4.03 (t, <i>J</i> = 7.8 Hz, 2H), 4.59 (d, <i>J</i> = 6.0 Hz, 2H), 7.26 (s, 2H), 7.28 (s, 2H), 8.26 (s, 1H), 10.35 (br t, <i>J</i> = 6.0 Hz, 1H). |
| 4-009 | | -CH ₂ - | 0.97 (t, <i>J</i> = 7.5 Hz, 3H), 1.43 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.64 (quint, <i>J</i> = 7.5 Hz, 2H), 1.74 (quint, <i>J</i> = 6.0 Hz, 2H), 1.88 (quint, <i>J</i> = 6.0 Hz, 2H), 2.62 (t, <i>J</i> = 6.0 Hz, 2H), 2.73 (t, <i>J</i> = 6.0 Hz, 2H), 3.78 (s, 3H), 4.01 (t, <i>J</i> = 7.8 Hz, 2H), 4.57 (d, <i>J</i> = 6.0 Hz, 2H), 6.85 (d, <i>J</i> = 9.0 Hz, 2H), 7.29 (d, <i>J</i> = 9.0 Hz, 2H), 8.27 (s, 1H), 10.24 (br t, <i>J</i> = 6.0 Hz, 1H). |
| 4-010 | | -O- | 0.98 (t, <i>J</i> = 7.5 Hz, 3H), 1.43 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.66 (quint, <i>J</i> = 7.5 Hz, 2H), 2.82 (t, <i>J</i> = 6.0 Hz, 2H), 4.01 (t, <i>J</i> = 6.0 Hz, 2H), 4.02 (t, <i>J</i> = 7.5 Hz, 2H), 4.60 (s, 2H), 4.64 (d, <i>J</i> = 6.0 Hz, 2H), 7.24-7.38 (m, 5H), 8.22 (s, 1H), 10.22 (br t, <i>J</i> = 6.0 Hz, 1H). |
| 4-011 | | -O- | 1.00 (t, <i>J</i> = 7.5 Hz, 3H), 1.45 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.69 (quint, <i>J</i> = 7.5 Hz, 2H), 2.83 (t, <i>J</i> = 6.0 Hz, 2H), 2.93 (t, <i>J</i> = 7.5 Hz, 2H), 3.67 (dt, <i>J</i> = 9.0 Hz, 6.0 Hz, 2H), 4.01 (t, <i>J</i> = 6.0 Hz, 2H), 4.03 (t, <i>J</i> = 7.5 Hz, 2H), 4.60 (s, 2H), 7.18-7.36 (m, 5H), 8.19 (s, 1H), 9.96 (br t, <i>J</i> = 6.0 Hz, 1H). |
| 4-012 | | -O- | 0.99 (t, <i>J</i> = 7.5 Hz, 3H), 1.45 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.67 (quint, <i>J</i> = 7.5 Hz, 2H), 2.82 (t, <i>J</i> = 6.0 Hz, 2H), 2.83 (t, <i>J</i> = 7.5 Hz, 2H), 3.61 (dt, <i>J</i> = 9.0 Hz, 6.0 Hz, 2H), 4.01 (t, <i>J</i> = 6.0 Hz, 2H), 4.03 (t, <i>J</i> = 7.5 Hz, 2H), 4.59 (s, 2H), 6.71 (d, <i>J</i> = 7.5 Hz, 2H), 7.07 (d, <i>J</i> = 7.5 Hz, 2H), 8.17 (s, 1H), 9.92 (br t, <i>J</i> = 6.0 Hz, 1H). |

表 8 7



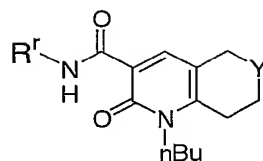
| 化合物 No. | R ^f | Y | ¹ H-NMR (CDCl ₃) |
|------------|----------------|---|---|
| 4-013 | | | 0.96 (t, <i>J</i> = 7.5 Hz, 3H), 1.41 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.60-1.73 (m, 2H), 2.78 (d, <i>J</i> = 4.2 Hz, 2H), 2.84 (d, <i>J</i> = 4.2 Hz, 2H), 3.48 (s, 2H), 3.69 (s, 2H), 3.99 (t, <i>J</i> = 7.5 Hz, 2H), 4.63 (d, <i>J</i> = 6.0 Hz, 2H), 7.26-7.37 (m, 10H), 8.21 (s, 1H), 10.24 (br t, <i>J</i> = 6.0 Hz, 1H). |
| 4-014 | | | 0.98 (t, <i>J</i> = 7.5 Hz, 3H), 1.43 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.65 (quint, <i>J</i> = 7.5 Hz, 2H), 2.78 (d, <i>J</i> = 4.5 Hz, 2H), 2.85 (d, <i>J</i> = 4.5 Hz, 2H), 2.92 (t, <i>J</i> = 7.5 Hz, 2H), 3.48 (s, 2H), 3.66 (dt, <i>J</i> = 9.0 Hz, 6.0 Hz, 2H), 3.69 (s, 2H), 4.01 (t, <i>J</i> = 7.8 Hz, 2H), 7.23-7.38 (m, 10H), 8.18 (s, 1H), 9.99 (br t, <i>J</i> = 6.0 Hz, 1H). |

表 8 8



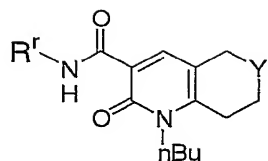
| 化合物 No. | R ^f | Y | ¹ H-NMR (CDCl ₃) |
|------------|----------------|---|--|
| 4-015 | | | 0.97 (t, <i>J</i> = 7.5 Hz, 3H), 1.43 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.65 (quint, <i>J</i> = 7.5 Hz, 2H), 2.77 (t, <i>J</i> = 6.0 Hz, 2H), 3.19 (t, <i>J</i> = 6.0 Hz, 2H), 3.86 (s, 2H), 4.01 (t, <i>J</i> = 7.8 Hz, 2H), 4.64 (d, <i>J</i> = 6.0 Hz, 2H), 7.23-7.38 (m, 5H), 8.24 (s, 1H), 10.27 (br t, <i>J</i> = 6.0 Hz, 1H). |
| 4-016 | | | 0.99 (t, <i>J</i> = 7.5 Hz, 3H), 1.45 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.66 (quint, <i>J</i> = 7.5 Hz, 2H), 2.78 (t, <i>J</i> = 6.0 Hz, 2H), 2.98 (t, <i>J</i> = 7.5 Hz, 2H), 3.19 (t, <i>J</i> = 6.0 Hz, 2H), 3.67 (dt, <i>J</i> = 9.0 Hz, 6.0 Hz, 2H), 3.86 (s, 2H), 4.02 (t, <i>J</i> = 7.8 Hz, 2H), 7.18-7.34 (m, 5H), 8.21 (s, 1H), 10.01 (br t, <i>J</i> = 6.0 Hz, 1H). |
| 4-017 | | | 0.98 (t, <i>J</i> = 7.5 Hz, 3H), 1.44 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.66 (quint, <i>J</i> = 7.5 Hz, 2H), 2.93 (br t, <i>J</i> = 6.0 Hz, 2H), 3.80 (br t, <i>J</i> = 6.0 Hz, 2H), 4.02 (t, <i>J</i> = 7.8 Hz, 2H), 4.49 (s, 2H), 4.62 (d, <i>J</i> = 6.0 Hz, 2H), 7.23-7.35 (m, 5H), 7.43-7.51 (m, 5H), 8.10 (s, 1H), 10.16 (br t, <i>J</i> = 6.0 Hz, 1H). |
| 4-018 | | | 0.98 (t, <i>J</i> = 7.5 Hz, 3H), 1.43 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.55-1.90 (m, 10H), 2.84 (quint, <i>J</i> = 6.0 Hz, 1H), 2.91 (t, <i>J</i> = 7.5 Hz, 2H), 3.82 (t, <i>J</i> = 6.0 Hz, 1/3 × 2H), 3.91 (t, <i>J</i> = 6.0 Hz, 2/3 × 2H), 4.01 (t, <i>J</i> = 7.8 Hz, 2H), 4.52 (s, 2/3 × 2H), 4.59 (s, 1/3 × 2H), 4.65 (d, <i>J</i> = 6.0 Hz, 2H), 7.24-7.39 (m, 5H), 8.81 (s, 2/3 × 1H), 8.83 (s, 1/3 × 1H), 10.20 (br t, <i>J</i> = 6.0 Hz, 1H). |

表 8 9



| 化合物 No. | R ^f | Y | ¹ H-NMR (CDCl ₃) |
|------------|----------------|---|--|
| 4-019 | | | 0.98 (t, <i>J</i> = 7.5 Hz, 3H), 0.99 (t, <i>J</i> = 7.5 Hz, 3H), 1.43 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.66 (quint, <i>J</i> = 7.5 Hz, 2H), 1.67 (quint, <i>J</i> = 7.5 Hz, 2H), 2.87 (t, <i>J</i> = 7.5 Hz, 2H), 2.84 (t, <i>J</i> = 6.0 Hz, 2/3 × 2H), 2.89 (t, <i>J</i> = 6.0 Hz, 1/3 × 2H), 3.77 (t, <i>J</i> = 6.0 Hz, 1/3 × 2H), 3.90 (t, <i>J</i> = 6.0 Hz, 2/3 × 2H), 4.01 (t, <i>J</i> = 7.8 Hz, 2H), 4.47 (s, 2/3 × 2H), 4.58 (s, 1/3 × 2H), 4.65 (d, <i>J</i> = 6.0 Hz, 2H), 7.24-7.39 (m, 5H), 8.30 (s, 2/3 × 1H), 8.33 (s, 1/3 × 1H), 10.19 (br t, <i>J</i> = 6.0 Hz, 1H). |
| 4-020 | | | 0.98 (t, <i>J</i> = 7.5 Hz, 3H), 1.29 (s, 9H), 1.43 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.65 (quint, <i>J</i> = 7.5 Hz, 2H), 2.85 (t, <i>J</i> = 6.0 Hz, 2H), 3.90 (t, <i>J</i> = 6.0 Hz, 2H), 4.00 (t, <i>J</i> = 7.8 Hz, 2H), 4.62 (s, 2H), 4.64 (d, <i>J</i> = 6.0 Hz, 2H), 7.24-7.38 (m, 5H), 8.31 (s, 1H), 10.20 (br t, <i>J</i> = 6.0 Hz, 1H). |

表 9 0



| 化合物 No. | R ^r | Y | ¹ H-NMR (CDCl ₃) |
|------------|----------------|---|---|
| 4-021 | | | 0.88 (t, <i>J</i> = 7.5 Hz, 1/3 × 3H), 0.99 (t, <i>J</i> = 7.5 Hz, 2/3 × 3H), 1.44 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.66 (quint, <i>J</i> = 7.5 Hz, 2H), 2.86 (t, <i>J</i> = 6.0 Hz, 1/3 × 2H), 2.99 (t, <i>J</i> = 6.0 Hz, 2/3 × 2H), 3.69 (t, <i>J</i> = 6.0 Hz, 1/3 × 2H), 4.02 (t, <i>J</i> = 6.0 Hz, 2/3 × 2H), 4.06 (t, <i>J</i> = 7.8 Hz, 2H), 4.40 (s, 1/3 × 2H), 4.62 (s, 2/3 × 2H), 4.63 (d, <i>J</i> = 6.0 Hz, 2H), 7.24-7.38 (m, 7H), 8.11 (s, 2/3 × 1H), 8.39 (s, 1/3 × 1H), 8.76 (d, <i>J</i> = 5.4 Hz, 2H), 10.12 (br t, <i>J</i> = 6.0 Hz, 1H). |
| 4-022 | | | 1.00 (t, <i>J</i> = 7.5 Hz, 3H), 1.46 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.67 (quint, <i>J</i> = 7.5 Hz, 2H), 2.91 (t, <i>J</i> = 7.5 Hz, 2H), 2.92 (t, <i>J</i> = 6.0 Hz, 2H), 3.66 (dt, <i>J</i> = 6.3 Hz, 6.9 Hz, 2H), 4.03 (t, <i>J</i> = 6.0 Hz, 2H), 4.04 (t, <i>J</i> = 7.5 Hz, 2H), 4.48 (br s, 2/3 × 2H), 4.68 (br s, 1/3 × 2H), 7.20-7.32 (m, 5H), 7.44-7.51 (m, 5H), 8.08 (br s, 2/3 × 1H), 8.37 (br s, 1/3 × 1H), 9.89 (br t, <i>J</i> = 6.0 Hz, 1H). |
| 4-023 | | | 0.99 (t, <i>J</i> = 7.5 Hz, 3H), 1.44 (sextet, <i>J</i> = 7.5 Hz, 2H), 1.60-1.88 (m, 10H), 2.83 (t, <i>J</i> = 6.0 Hz, 2H), 2.89 (quint, <i>J</i> = 6.0 Hz, 1H), 2.93 (t, <i>J</i> = 7.5 Hz, 2H), 3.68 (dt, <i>J</i> = 6.6 Hz, 7.2 Hz, 2H), 3.82 (t, <i>J</i> = 6.0 Hz, 1/3 × 2H), 3.91 (t, <i>J</i> = 6.0 Hz, 2/3 × 2H), 4.02 (t, <i>J</i> = 7.8 Hz, 2H), 4.52 (s, 2/3 × 2H), 4.58 (s, 1/3 × 2H), 7.18-7.34 (m, 5H), 8.27 (s, 2/3 × 1H), 8.30 (s, 1/3 × 1H), 9.93 (br t, <i>J</i> = 6.0 Hz, 1H). |